

NORTHERN ILLINOIS COMMUTER RAIL INITIATIVE

COMMUTER RAIL FEASIBILITY STUDY

I. PROJECT BACKGROUND AND INTRODUCTION

Project Background

Boone and Winnebago Counties have experienced significant growth over the past decade, especially along the Interstate 90 Tollway Corridor. Since this tremendous rate of growth is expected to continue over the next twenty years, Boone and Winnebago Counties have been studying how to manage it. In 1999, Boone County and the City of Belvidere completed Boone County's Comprehensive Land Use Plan. The City of Rockford and the Rockford Area Transportation Study (RATS) also conducted a similar plan and other studies for Winnebago County. These studies showed local communities in both counties that an improved transportation system, which includes commuter rail and a new Tollway interchange near Irene Road, is integral to managing the area's growth. They also led to formation of the Northern Illinois Commuter Rail Initiative (NICRI), an open committee of area citizens and officials that has led an effort to study the feasibility of commuter rail in Boone and Winnebago Counties. Shortly after its formation, over 40 local governments, businesses, and chambers of commerce joined NICRI. This feasibility study is an initial step for evaluating the need for and feasibility of bringing commuter rail service to Boone and Winnebago Counties.

This study focused on the Union Pacific Railroad (UPRR)'s Belvidere Subdivision since the area's current and projected growth is centered on the Interstate 90 Corridor. The Union Pacific Belvidere Subdivision runs just north of Interstate 90 from Rockford to Elgin and could offer access to the corridor's existing and future major employment centers (e.g. Ag-Tech Park, Daimler Chrysler, and Tollway Station Point), Chicago's northwest suburbs, and Chicago itself.

This study has broadly examined the physical, operational, and financial feasibility of the Union Pacific Belvidere Subdivision and other nearby freight lines to help NICRI determine whether commuter rail service is feasible in the Interstate 90 Corridor and identify the next steps required, if it is feasible. Included in this analysis is the following:

1. Documentation of existing physical and operational conditions on the Union Pacific Belvidere Subdivision and parts of other rail lines within the Interstate 90 Corridor,
2. Assessment of future plans and conditions,
3. Identification of potential improvements,
4. Evaluation of potential ridership, and
5. Development of order-of-magnitude cost estimates and assessment of financial feasibility.

Metra, the Regional Transportation Authority (RTA)'s commuter rail service board, is currently studying the feasibility of commuter rail service on the Union Pacific Belvidere Subdivision from the RTA's service boundary, west of Marengo in McHenry County to

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the existing Metra terminus at Big Timber Road in Elgin. Metra provides most of Northeastern Illinois' commuter rail service. (The Northern Indiana Commuter Transportation District provides some service to southeastern Chicago with its South Shore Line.)

Project Approach

NICRI and this study's consultant, TranSystems Corporation, have sought a consensus among all of the parties to this project, including many of NICRI's governmental entities, the Canadian National Railroad (CN), the Illinois Department of Transportation, the Illinois State Toll Highway Authority, Metra, and the Union Pacific Railroad (UPRR). Although this study is an initial step in the feasibility study process, early use of the consensus approach lays a foundation for future work on the project with an eye toward entering the *New Starts* program that the Federal Transit Administration (FTA) has developed.

The Federal Transit Administration's discretionary *New Starts* program is the Federal government's primary financial resource for supporting locally-planned, implemented, and operated transit "guideway" capital investments. From heavy rail to light rail, from commuter rail to bus rapid transit systems, the *New Starts* program has helped to make possible hundreds of new or extended fixed guideway transit systems across the country.

As part of the feasibility study, a detailed review of the *Rockford Rail Consolidation Study* was conducted to highlight key elements of that plan and show its compatibility or incompatibility with the proposed commuter rail service. As discussed later in this report, it was determined that the Rockford Rail Consolidation Plan and this proposed commuter rail service are complimentary and achieve mutually beneficial objectives.

The following principles have proven valuable in providing guidance for successfully implementing commuter rail service around the country and are therefore used to guide this study:

- The proposed system should be competitive with other modes of transportation;
- The proposed system should be integrated with the freight rail system;
- The benefits should be worth the costs;
- The affected units of government must cooperatively study, develop, and implement the proposed system in a cost-effective manner;
- The proposed system should provide a transportation choice that will connect people to jobs;
- The proposed system should be safe, fast, reliable and comfortable;
- The proposed system should provide advantages not achieved with other forms of transportation; and
- The proposed system should enhance the region's economic opportunity and quality-of-life.

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The following general tasks highlight the approach taken for this study:

- Evaluation of existing infrastructure and operations,
- Analysis of existing and proposed operations,
- Compatibility of the proposed commuter rail service and freight service on the line,
- Identification of potential stations sites based on location and availability,
- Identification of potential environmental issues to be addressed in later phases of this project,
- Projections of preliminary ridership based on traditional and secondary markets, and
- Presentation of realistic financial challenges facing service implementation and identification of possible ways to meet those challenges.

Existing Conditions

The following section summarizes existing conditions on the UPRR Belvidere Subdivision between Elgin (Big Timber) and Rockford (MP 45.5 to MP 93.5), as well as the Canadian National/Illinois Central Railroad (CN/IC) Freeport Subdivision between Mulford Road and a site just west of Corbin Street in Rockford (MP 80.1 to MP 87.6). This information is based on interviews with railroad personnel; site visits, including a UPRR Hi- Rail trip on May 14, 2004, and other railroad data.

A. Union Pacific Railroad Crossings

1. At-Grade Crossings

At-Grade Public	58
At-Grade Private	29
At-Grade Pedestrian	<u>2</u>
Total At-Grade	89

2. Grade Separations

Railroad Over	11
Railroad Under	<u>11</u>
Total Grade Separations	22

B. Canadian National Railroad Crossings

1. At-Grade Crossings

At-Grade Public	19
At-Grade Private	3
At-Grade Pedestrian	<u>0</u>
Total At-Grade	22

2. Grade Separations

Railroad Over	0
Railroad Under	<u>5</u>
Total Grade Separations	5

C. Union Pacific Railroad Track Conditions

1. ***Tie Condition*** – The Union Pacific Railroad has placed a “slow order” on the entire Belvidere Subdivision, given its existing tie and track surface conditions. This slow order temporarily reduces the allowable track speed from 49 mph to 40 mph.
 - a. Tie replacement is planned for 2005 at the rate of 1,000 ties per mile (roughly every third tie).
 - b. The last major tie renewal on this line was done in 1987. (The consultant team initially expects that an extra 350 ties per mile will need to be replaced in order to give the proposed commuter rail operation additional infrastructure reliability).
 - c. The Union Pacific Railroad previously installed numerous 10-foot cross ties between MP 52 and MP 54 to correct surface problems in the area before the welded rail was installed. These 10-foot ties will be removed as part of the tie program mentioned above.
 - d. Once the UPRR makes these tie renewals, the track speed will be restored to 49 mph.
2. ***Track Surface*** – The UPRR is currently spot surfacing the line to maintain the current track speeds and plans to completely surface the line’s track in 2005 (additional ballast and surfacing of the line will be required to increase the track speed from 49 to 79 mph).
3. ***Track Alignment*** – The current horizontal and vertical track alignment is acceptable for commuter train operation today.
 - a. Horizontal Alignment – Much of the alignment is tangent with most of the curves near 1 degree. The maximum degree of curve on the line is 2 degrees 40 minutes near MP 77.5. The curves over 2 degrees (approximately 2 miles) will restrict the maximum operating speed of commuter trains to 60 mph.
 - b. Vertical Alignment – The ruling grade (maximum grade) on the line is 0.48%, located just west of Big Timber Station in Elgin. The line’s grade will not impact proposed commuter operations.
 - c. Special Concerns – Numerous grade crossings and minimal sight distances near the crossings have contributed to a 10 mph timetable speed restriction between MP 91.1 and MP 93.5.
4. ***Rail Condition*** – Most railroads and commuter rail operators usually accept 115RE rail as the minimum rail section. This line has the following existing rail sections:

- MP 41.0 to MP 65.4 – SH 115RE CWR (Continuously Welded Rail) (1985),
- MP 65.4 to MP 74.4 – SH 10025 CWR (Laid 1985),
- MP 74.4 to MP 80.0 – SH 115RE CWR (Laid 1985),
- MP 80.0 to MP 80.4 – SH 11228 CWR (Laid 1985),
- MP 80.4 to MP 85.9 – 11035 Jointed Rail (Laid 1929, 1937),
- MP 85.9 to MP 91.2 – SH 9020 CWR (Laid 1987, 1991),
- MP 91.2 to MP 92.9 – SH 11228 CWR (Laid 1988),
- MP 92.9 to MP 93.4 – SH 9020 CWR (Laid 1988), and
- Balance-of-Line – 7250 Jointed Rail (Laid 1903).

This line has approximately 25.5 miles of 115RE CWR. This rail is second-hand and will need to be inspected in more detail in order to ascertain its expected life and confirm that it will be acceptable to Metra or any other commuter rail operator. The remaining 22.4 to 27.1 miles of rail weighing less than 115 lbs will need to be replaced.

Drainage Conditions – Drainage conditions along the line are generally good, with only a few areas of concern. Normal roadbed maintenance, such as the cleaning of ditches and existing inlets, can correct most of these concerns. The Iowa, Chicago & Eastern Railroad overhead bridge west of Big Timber (MP 46.72), for example, has a ditch below it on UPRR property that fills in and must be cleaned out annually. The other areas of concern will require drainage improvements to divert water away from the track structure. Most of these areas are near crossings and under overpass bridges.

D. Canadian National Track Conditions

1. **Tie Condition** – The tie conditions are acceptable for passenger and freight speeds proposed along this segment (MP 80.1 to MP 87.6 on the CN/IC Freeport Subdivision). Only spot tie renewals and normal cycle maintenance work will be required to maintain the speeds proposed for commuter rail service.
2. **Track Surface** – The track surface is acceptable for passenger and freight speeds proposed along this segment. Only spot surfacing and normal cycle maintenance work will be required to maintain the speeds proposed for commuter service.
3. **Track Alignment** – The horizontal track alignment has six curves that are greater than four degrees and will require commuter trains to reduce their speed. However, time lost to reduced speed will be nominal. The vertical track alignment is acceptable for commuter train operations.
 - a. Horizontal Alignment – The CN/IC Freeport Subdivision has 14 curves in this segment, six of which are four degrees or greater. Commuter train speeds will likely be restricted to less than 45 mph for 2.7 miles from MP 84.6 to MP 87.3.
 - b. Special Concerns – The CNRR has an at-grade railroad crossing with Illinois RailNet at “Rockford Junction”. Since railroad crossings are typically a

maintenance concern, Rockford Junction will require additional work in order to maintain the desired train speed needed for effective commuter rail service.

4. ***Rail Condition*** – This line’s existing 115RE rail is acceptable for the proposed commuter rail service. However, the consultant team suggests that rail in the sharper curves (MP 84.6 to MP 87.3) be replaced in order to support the commuter trains’ higher speeds (45/35 mph vs. 25 mph presently) and more frequent service.
5. ***Drainage Conditions*** – Drainage conditions along the line are generally good with drainage improvements necessary only for the railroad crossings.

E. Bridge Structures

Bridges are another critical element when evaluating the route’s existing physical condition. Both railroads have advised the consultant team that they have no major bridge concerns on their lines. However, the consultant team has noted the following items in its infrastructure investigation:

1. *Union Pacific Railroad*

- a. The UPRR Belvidere Subdivision has several open deck bridges, which may be converted to culverts or ballast deck bridges in order to improve rider comfort.
- b. Although the Rock River Bridge is in fair condition, the Union Pacific has advised the consultant team that this bridge may require significant maintenance and repairs in the near future.
- c. Several of Rockford’s railroad bridges have a history of being hit by trucks since they have less than thirteen feet clearance above the highway.
- d. A single lane bridge on Rockford’s east side may need to be lengthened or replaced in order to accommodate roadway widening under the bridge. Increasing traffic in the area has necessitated the roadway’s widening.
- e. The “depression” in Rockford between MP 91.8 and MP 92.3 is a high crime area with drainage and trash concerns. The City of Rockford has identified this area as one they would like to see improvements made to the layout.
- f. The superstructure of the Kishwaukee River bridge at Cherry Valley (MP 84.4) was rehabilitated in 1987 and is in good condition.

2. *Canadian National*

- a. The bridges, which would carry the yard tracks over Kent Creek in the vicinity of MP 86.5 and MP 87.2, may require rehabilitation and possibly replacement in order to serve the proposed commuter rail service.

F. Signals

1. Union Pacific Railroad

- a. Since this line does not currently have a wayside signal system, trains operate according to Union Pacific operating rules. A wayside signal system has fixed signals along a track's right-of-way that conveys what a train, an open switch, or some other shunting of the signal circuit has automatically actuated. The Federal Railroad Administration (FRA) sets the maximum allowable speed at 49 mph for freight and 59 mph for passenger trains on lines without wayside signaling.
- b. The UP Belvidere Subdivision's grade crossing signals are currently set for 49 mph and would need to be re-adjusted for higher commuter train speeds. The older grade crossing signals would also be upgraded in order to work with a new Centralized Traffic Control (CTC) wayside signal system. Under a Centralized Traffic Control System, the train dispatcher is constantly aware of each train's position as it is electrically reported and controls the signals and switches from a remote location.
- c. Metra currently favors a Centralized Traffic Control (CTC) wayside signal system and will only operate new service on lines that have it. In the future, however, Metra plans to implement cab signals for its service.

2. Canadian National

- a. An Automatic Block Signal System (ABS) is currently in effect on the line. Metra will probably require that this wayside signal system be upgraded to a CTC signal system. An Automatic Block Signal System has signals that a train, open switch, or some other shunting of the signal circuit automatically activates.
- b. The proposed connection at Mulford Road will need to be remotely controlled, most likely by the CN.

G. Canadian National Alignment into Rockford

The Union Pacific and Canadian National Railroads run parallel most of the way from Rockford's east side to downtown Rockford. The Rockford Rail Consolidation Study prefers to use the Canadian National Railroad as a consolidated route into and through Rockford. The consultant team took this preference into account when it investigated potential locations for a downtown Rockford Station. A comparison of key infrastructure features for each of the route alignments is shown in *Table I-1*. The following list highlights several benefits from choosing the Canadian National alignment over the Union Pacific one.

1. Since this alignment is on the CN's main line to Sioux City, Iowa and Omaha, Nebraska, it has an existing wayside signal system.
2. This alignment serves Rockford's former Illinois Central Station, which is the preferred location of the City of Rockford for the downtown Rockford Station.

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3. The alignment provides good access to the CN yard west of Winnebago Street, which is the preferred location for the layover facility.
4. The Rockford Rail Consolidation Study identified the CN track and bridge as the preferred route for consolidated rail operations in Rockford across the Rock River. The Union Pacific Bridge and associated alignment was the second choice. The commuter rail concept is to use the CN route making it compatible with this plan.

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I. Miscellaneous Items

1. The Union Pacific Railroad has indicated that this line will need sidings that are approximately 1.2 to 1.5 miles long (roughly 6,400 feet to 8,000 feet) in order to handle the longest freight trains that are anticipated for this line. The siding length will need to be confirmed if and when the improvements are made to ensure that they will properly address the operating conditions at that time.
2. A new stone quarry is located north of the tracks and west of Irene Road at MP 82.3.
3. The City of Rockford is considering building a zoo south of the Union Pacific tracks between MP 83 and MP 84.
4. The Union Pacific Railroad has removed many of its line's industrial tracks and spurs and will remove more in the future, including the track to the "Green Giant" facility near MP 77.7. This area near MP 77.7 could be a possible location for a short passing siding to support the commuter rail service.
5. The City of Elgin has expressed an interest in relocating the existing Metra layover facility outside of Elgin.
6. The City of Elgin would also like to have the Union Pacific remove all of their tracks within its borders. The Union Pacific is interested in connecting to Metra at MP 41 (East of the Fox River) and returning to their line again near MP 45.8, west of Big Timber.

To accomplish this, several modifications would need to occur. First, the existing connection between the UPRR and the Elgin, Joliet & Eastern (EJ&E) Railroad in West Chicago would have to be redesigned. This modification would allow for increased traffic between this connection and Spaulding Junction. Second, the EJ&E would need to modify its yard and crossovers to improve Spaulding Junction, which connects the EJ&E with Metra's Milwaukee District West Line. This would allow the UPRR to travel on Metra tracks from Spaulding Junction to Big Timber Road. And finally, at the Fox River in Elgin, Metra has a single track bridge with double tracks leading up to it. One of these double tracks could be connected to a nearby UPRR bridge in order to alleviate congestion at this pinch point. Through crossovers just west of Big Timber Station, UPRR trains could re-enter the Belvidere Subdivision.

Freight Operations

The Union Pacific (UPRR) Belvidere Subdivision extends 63 miles from West Chicago to Rockford and primarily serves Daimler-Chrysler's automobile assembly plant in Belvidere. The plant is located approximately one mile south of MP 80 on the main track. The plant features a ten track tri-level rail yard for loading finished vehicles destined for West Chicago, where they are placed on various mainline freight trains for delivery to the Southwest, West, and Northwest. Presently, the UPRR operates one freight train in each direction every 24 hours to effectively serve all customers between West Chicago and Belvidere.

A local freight train also serves other customers within Belvidere, as needed. This train travels to Rockford three-days-a-week to serve customers there and interchange freight cars to Rockford's other railroads.

In Rockford, the Canadian National's Freeport Subdivision parallels the Union Pacific's Belvidere Subdivision for approximately 5.5 miles. The Freeport Subdivision is the CN's mainline to Sioux City Iowa and Omaha, Nebraska. It, therefore, has a mainline track infrastructure and signal system. Two freight trains travel in each direction on this line every 24 hours. Extra trains, which normally haul grain, also operate seasonally on this line.

Alternative Public Transportation

Several private operators currently provide bus service to Chicago, including service to O'Hare and Midway Airports. Van Galder Bus Company operates 4 trips daily between Rockford and downtown Chicago, 17 trips daily between Rockford and O'Hare Airport, and 7 trips daily between Rockford and Midway Airport. Greyhound operates 2 trips daily to downtown Rockford from Chicago. Other private limousine and shuttle services are also available.

Local transit service in the cities of Rockford and Loves Park and the Village of Machesney Park, is provided by Rockford Mass Transit District (RMTD) which operates both paratransit and fixed route service. RMTD operates 17 fixed bus routes Monday through Saturday, with 5 routes operating in the evenings and on Sunday. RMTD does not provide service outside of the Rockford area. Demand-response transit service is provided in Boone County by the Boone County Council on Aging.

Surrounding Land Use

Three of the five potential commuter rail station sites are within well-established, dense, urban areas where land use has remained unchanged. The remaining sites are in areas where open space is still available for growth and development. This section details the surrounding land uses for each specific station site.

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1. Downtown Rockford Station

The proposed Downtown Rockford Station lies north of the Canadian National tracks and south of the Iowa, Chicago & Eastern tracks between South Winnebago Street and South Main Street. This site is within the South Rockford Tax Increment Financing (TIF) District, which has a variety of commercial businesses, light-industries, and single-family homes. The Tinker Swiss Cottage Museum, Tinker Park, and Booker T. Washington Park are also within this section of Rockford. Based on available information, the City of Rockford does not have any proposed revisions to land use and zoning plans adjacent to the station site.

Rockford's Central Business District lies north and east of the proposed station site. The Central Business District has commercial, cultural, office, and recreational uses, including the following: Burpee Museum of Natural History, Children's Museum, Coronado Theater, Federal Courthouse, New American Theatre Centre, Riverfront Museum Park, Rockford Metro Centre, and the Rockford Public Library.

The Rock River lies east of the station site, while the North and South Forks of Kent Creek converge southwest of the station site before connecting to the Rock River. Bridge crossings are located at Chestnut Street, East and West State Street, Morgan Street/College Avenue, South Main Street, and South Winnebago Street. (Please see Appendix D, *Environmental Resource Maps, ERM-1* for zoning and land use boundaries.)

2. Alpine Road Station

The proposed Alpine Road Station site is located west of Alpine Road and south of the Canadian National tracks, within the Pine Manor Park subdivision. This site is centrally located since it has access to U.S. Route 20; Interstate 39; and Alpine Road, a major collector on Rockford's east side.

Light and heavy industries are located east of Alpine Road near this potential station site. Residential, recreational, and open space uses surround the rest of the site. Swan Hill Park is located just north of the station site on the other side of the Union Pacific and Canadian National tracks and Ekberg Park lies just west of the station site.

The Illinois Environmental Protection Agency has found evidence of unregulated household and industrial waste dumping at this site from 1959 to 1970. It thus became a major source of groundwater contamination in southeastern Rockford and has been designated a Superfund site.¹ Given this environmental problem, the Perryville Road Station site may be substituted for this site. Based on available information, the City of Rockford has no proposed revisions to the land use and zoning plans adjacent to this station site. (Please see Appendix D, *Environmental Resource Maps, ERM-2* for zoning and land use boundaries.)

¹ "Remedial Investigation Report Southeast Rockford Groundwater Contamination Study", January 1995, Camp Dresser & McKee Inc.

3. Perryville Road Station

The Perryville Road Station site lies northwest of Perryville Road and the Union Pacific tracks inside of Cherry Valley's South East Community Park and adjoining agricultural lands. It is highly visible and readily accessible from major transportation corridors, including Interstate 90, U.S. Route 20, and Harrison Avenue. It is also near such major regional attractions as Cherry Vale Mall and Magic Waters Theme Park.

Most of the land surrounding the proposed station site is currently agricultural with a new housing development on its western boundary. Based on available zoning and land use maps, the agricultural land is zoned for commercial, retail, and office use. Also in the vicinity of the site is an unnamed tributary located to the south. (Please see Appendix D, *Environmental Resource Maps, ERM-3* for zoning and land use boundaries.)

4. Tollway Station Point Station

The Tollway Station Point (TSP) site is bounded by the Union Pacific Railroad on the north, U.S. Route 20 on the south, Town Hall Road on the east, and Interstate 90 on the west. This site's adjacent land use is primarily agricultural, with pockets of industrial properties, including the Daimler-Chrysler Assembly Plant that lies southeast of U.S. Route 20 and Townhall Road. An unnamed creek, which parallels U.S. Route 20 and Interstate 90 lies south of this site.

This site is also located within the Tollway Station Point Development, a transit-oriented development site where government and business leaders hope to have a future I-90 interchange and potential commuter rail station. Discussions and details about this transit-oriented development are included in Section II, *Future Development*. (Please see Appendix D, *Environmental Resource Maps, ERM-4* for zoning and land use boundaries.)

5. Downtown Belvidere Station

The Downtown Belvidere Station site is bounded by Pleasant Street on the north, Buchanan Street on the south, Main Street on the east, and Whitney Boulevard on the west. Land use around the station site is primarily commercial, except east of Main Street, which is primarily residential. Two blocks north of this site is the Kishwaukee River, which has bridge crossings at State and Main Streets. Farther away from the station site are residential neighborhoods west of Union Avenue and Doty Park, which has a canoe launch site on the Kishwaukee River and a recreational path.

The area is mature and well established. Based on available information, the City of Belvidere has not proposed any revisions to its land use and zoning plans near the station site. (See Appendix D, *Environmental Resource Maps, ERM-5* for zoning and land use boundaries.)

Environmental Conditions

In the USDOT Act of 1966, a special provision known as 4(f) was included to protect the natural beauty of the countryside, public parks, recreational areas, wildlife and waterfowl refuges, and historic sites. In 1983, this provision was codified as 49 U.S.C. 303 and applies to all transportation projects that use federal funds. The consultant team, therefore, inventoried the study area's environmental resources using the following sources and catalogued them for each potential station site:

- Local Agency/County/State Maps;
- Environmental Reports, Studies, and Data Bases;
- Land Use and Zoning Maps;
- The Illinois Environmental Protection Agency Website;
- The U.S. Environmental Protection Agency Website;
- FEMA Floodway/Floodplain Maps;
- National Wetland Inventory Maps;
- USGS and ISGS Data; and
- The IDOT, Bureau of Design and Environment Manual.

After cataloguing these environmental resources, the consultant team depicted them on maps located in Appendix D and has described each proposed station site's environmental resources below. (For further discussion of the proposed station sites, please see Section III, *Proposed Infrastructure Improvements/Stations*.)

1. Downtown Rockford Station

The Downtown Rockford Station site is near the Tinker Swiss Cottage Museum and the Tinker, Booker T. Washington, and Riverfront Museum Parks. Station redevelopment should not impact these properties.

In addition to these nearby properties, the consultant team inventoried sensitive sites for future noise and air quality considerations. South of the proposed station site, these sensitive sites included nearby residences, various churches and museums, a library, and a community center. North of the proposed station site, these included the Rockford Metro Centre, New American Theater, Coronado Theater, a public library and the Federal Courthouse.

The National Wetland Inventory (NWI) Map identified wetlands along the Rock River's banks. The proposed station site, however, will not impact these wetlands. Waterways and their associated 100-year floodplains include the Rock River, Kent Creek and Kent Creek's North and South Forks. Station construction may impact Kent Creek's 100-year floodplain. Impacts should be less than one acre.

Based on the U.S. Environmental Protection Agency's (USEPA) listing of July 14, 2004, a Superfund site and some Leaking Underground Storage Tanks (LUSTs) are situated near the station site. However, the proposed Downtown Rockford Station

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should not impact any of these sites. [See Appendix D, *Environmental Resource Maps (ERM-1)* for the locations of these identified resources.]

2. Alpine Road Station

The Alpine Road Station site will likely impact 5.5 acres of 4(f) property since it is situated just east of Ekberg Park within the Pine Manor Park subdivision and just south of Swan Hill Park. It may also impact sensitive air quality and noise receptors that are adjacent to and near this station site, which include surrounding residential properties and the Swan Hillman Elementary School.

The consultant team identified LUST sites, wetlands, and an unnamed tributary's 100-year floodplain, which parallels the Union Pacific and Canadian National Railroad tracks. Although this station site will not impact the LUST sites or wetlands, it will impact the 100-year floodplain.

This area was included in a *Remedial Investigation Study of Groundwater Contamination in Southeast Rockford*, which Camp Dresser & McKee Inc. completed in January 1995. This report situates the Alpine Road Station site within Area 7 of a Superfund site. Area 7's contamination plume, in fact, extends out and fully encompasses the proposed station site and parking. Three target compounds (TCA, TCE, and PCE) were also detected in the proposed station footprint [grid areas 7b and 7c of Environmental Resource Map 2 (ERM-2) that is contained in Appendix D], indicating the presence of volatile organic compounds. This study also found buried magnetic anomalies and volatile organic compounds present in the soil gases, primarily around Ekberg Park.² Additional sampling and studies will be required to determine remediation and removal strategies for the contaminants and this project's impacts on the site.

Based on information provided by the Illinois EPA (IEPA) the site remediation is under the responsibility and management of the IEPA and clean-up activities have been initiated. Prior to any construction activities, additional coordination with the IEPA is recommended to determine the status of completion of the site clean-up and remediation. (Please see Appendix D, *Environmental Resource Maps, ERM-2* for locations of identified resources.)

3. Perryville Road Station

Unlike the Alpine Road Station site, the alternative Perryville Road Station site will likely impact few environmental resources. One of these resources is the Southwest Community Park, which is currently open space with no recreational amenities, such as playground equipment or sports fields. Since it does not have any active recreational uses, it may not receive 4(f) protection.

² "Remedial Investigation Report Southeast Rockford Groundwater Contamination Study", January 1995, Camp Dresser & McKee Inc.

The National Wetlands Inventory Map identifies two freshwater emergent wetlands, which lie near an unnamed tributary south of the station site. The proposed station site will not likely impact these wetlands. It also will not impact the two LUST sites that are listed on the Illinois Environmental Protection Agency's listing for this area.

The nearest sensitive air quality and noise receptors are residential developments located west and southeast of the station site. (Please see Appendix D, *Environmental Resource Maps, ERM-3* for locations of identified resources.)

4. Tollway Station Point Station

Environmental resources for this station site include wetlands, an unnamed creek, recreational paths and corridors, a 100-year floodplain, and LUSTs. Roadway access improvements, not station construction, will impact the unnamed creek and wetlands, while the other resources are too far away from the station site to be affected.

Potential sensitive air quality and noise receptors include a farm house north of U.S. Route 20, just west of Irene Road; a residential area south of U.S. Route 20, west of Irene Road; and a farm house at the southeast corner of U.S. Route 20 and Irene Road. (Please see Appendix D, *Environmental Resource Maps, ERM-4* for locations of identified resources.)

5. Downtown Belvidere Station

Natural resources for the Downtown Belvidere Station site are limited to Doty Park and the Kishwaukee River and its 100-year floodplain. However, the station site should not impact these resources because they are far from the station site.

Sensitive sites and receptors include nearby residential areas and the Boone County Historical Museum. Other inventoried sites may be situated far enough away to avoid any air quality and noise impacts. The consultant team also identified LUSTs. Boone County Auto Parts is the nearest LUST site, located south of the proposed station, along Whitney Boulevard. (Please see Appendix D, *Environmental Resource Maps, ERM-5* for locations of identified resources.)

II. FUTURE DEVELOPMENT

Rockford Rail Consolidation Initiative

In September 2003, the City of Rockford completed the Rockford Railroad Consolidation Study, which examined how Rockford's four railroads could consolidate some of their operations to reduce redundant trackage within the City. One of this study's recommendations included removal of Union Pacific Railroad's tracks west of Mulford Road and connection of the Union Pacific Railroad to the Canadian National's Freeport Subdivision. The Canadian National's bridge, therefore, would be the only railroad crossing over the Rock River. The City of Rockford is actively pursuing this initiative's recommendations. This commuter rail study also supports these recommendations and

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recommends that the proposed commuter rail service use the Canadian National alignment to serve downtown Rockford.

Freight Operations

The number of through trains on the Union Pacific Belvidere Subdivision may expand to four trains daily, if Belvidere's Daimler-Chrysler assembly plant expands to a three shift operation. These new trains would deliver auto parts to the plant as well as transport finished automobiles.

Through its tri-weekly freight service, the Union Pacific Railroad will also serve its remaining customers in Rockford and interchange freight cars with the Canadian National; Illinois RailNet; and Iowa, Chicago & Eastern Railroads. It is assumed that the Union Pacific Railroad will obtain trackage rights over the Canadian National Railroad somewhere west of Mulford Road so that it can retire its tracks in Rockford.

A future connection at the Canadian National-Illinois RailNet crossing will provide access to the KD Line east of the Rock River. The Illinois RailNet will use this connection to access the Canadian National Bridge over the Rock River and interchange with the Iowa, Central & Eastern Railroad, as the Rockford Rail Consolidation Study proposes. The Iowa, Central & Eastern Railroad will use this connection for trains that operate on the Illinois RailNet to and from Davis Junction.

The Canadian National stated that it does not expect any additional traffic volumes on its Freeport Subdivision. For the foreseeable future, one through freight train in each direction and one daily local freight train has been regularly scheduled with occasional extra trains.

Tollway Station Point

Boone County and the City of Belvidere developed the Tollway Station Point concept as a means to harness development pressures from the Greater Rockford Metropolitan Area on the west and the Chicago Metropolitan Area on the east. This concept involves creating a transit-oriented development, which encourages mixed use, high density, commercial, industrial, office, and residential development around various transportation modes (e.g. commuter rail, sidewalks, roads, and bicycle paths.) This proposed transit-oriented development would allow people to enjoy the benefits of an urban setting while living near the "country." The Federal Transit Administration's "New Starts" process encourages these types of developments, which can help make commuter rail service and other forms of public transportation successful.

To connect this new development with the surrounding region, this concept advocates for a commuter rail line to Chicago, a new Interstate 90 interchange at Irene Road, and a new local arterial at Townhall Road.

The Tollway Station Point concept has gained wide support and is an important element in a series of innovative long-term economic development strategies that the City of

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Belvidere, Boone County and Growth Dimensions developed to support and supplement the *Boone County Comprehensive Plan*.

Projected Land Use

Projected land use around the proposed station sites is not expected to change considerably from the current and the planned designated use areas. However, the Cities of Rockford and Belvidere have included accommodations for commuter stations in their long-range plans.

City of Rockford

Significant changes to Rockford's projected land use are not anticipated.

Village of Cherry Valley

The Village of Cherry Valley contains the Perryville Road Station site. Although the Village advocates future use of the Union Pacific Belvidere Subdivision for commuter rail service, it will need to re-zone the proposed station site from its current designation as Park/Public & Private Open Space.

Boone County

The station site for the Tollway Station Point (TSP) is currently within unincorporated Boone County and will require no change in this area's projected land use. In fact, Boone County has already adopted a strategy which makes this potential commuter rail station one of its focal points for development. Additional discussions are provided earlier in Section II, *Future Development/Tollway Station Point*.

City of Belvidere

Significant changes to the projected land use for downtown Belvidere are not anticipated.

Roadway Improvements

Traffic Analysis

The consultant team forecasted how much p.m. peak traffic each station site would add to existing traffic on the nearby road network in 2030 to empirically determine roadway improvements for each station site. The consultant team analyzed p.m. peak hour traffic because exiting commuters make the station their point-of-origin in the p.m. peak. Future development contributions were not factored in since it is difficult to predict what types

³ "Executive Summary Report", Downtown Belvidere Revitalization Strategy, April 1994, PGAV-Urban Consulting.

⁴ Cherry Valley Comprehensive Plan, April 2004.

⁵ Cherry Valley Comprehensive Plan Land Use Map, Revised: 2000.

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of development would occur and when that development would be completed. The following steps were completed to determine these possible roadway improvements:

The consultant team estimated that a station's 500 space parking facility will approximately generate 1,300 additional vehicles on the nearby road network each day (ADT), using the "Light Rail Transit Station and Parking" land use code (093) from the *Institute of Transportation Engineers, Trip Generation, 6th Edition*.

The consultant team divided the total ADT volume projection according to a.m. peak, p.m. peak, and non-peak travel:

<u>Time Period</u>	<u>ADT Volume</u>
A.M. Peak	500 per day
P.M. Peak	500 per day
Remainder of Day	300 per day
Total:	1,300 per day

To convert the daily volumes to hourly equivalents, the peak hour periods were assumed to be 2.5 hours long. This converted the ADT volumes to daily hour volumes (DHV):

<u>Time Period</u>	<u>DHV</u>
Morning Peak	200 vehicles/hour
Evening Peak	200 vehicles/hour
Remainder of Day	120 vehicles/hour

Next, the consultant team obtained existing ADT volumes for roads surrounding each station site from the Town Hall Road Relocation Study and RATS ADT volume maps. The following annual growth percentages were applied to these existing ADT volumes to forecast 2030 ADT volumes:

<u>Station Site</u>	<u>Growth Percentage</u>
Downtown Rockford	0.5%
Alpine Road	1.0%
Perryville Road	1.5 to 2%
Tollway Station Point	1.5 to 2%
Downtown Belvidere	0.5%

The consultant team then converted these 2030 ADT volumes to hourly volumes by assuming that the daily hour traffic volumes are approximately 10 percent of the ADT volumes.

The evening peak hourly volume of 200 vehicles per hour from the station was distributed. The distribution considered residential locations from the station and projected changes in population and dwelling information from RATS. The distribution provided information on the likely destinations of exiting commuters and which surrounding roadways they would most likely travel on and which intersections they would most likely turn at.

Criteria for Improvement Needs

The consultant team obtained its criteria for determining needed improvements from IDOT's Bureau of Design and Environment Manual, the IDOT Federal-Aid Procedures for Local Highway Improvements, and the Fourth Edition of the AASHTO Policy on Geometric Design of Highways and Streets. These resources stated that 300 vehicles per peak hour are needed for dual turn lanes, 150 vehicles per peak hour for right turn lanes, and 75 vehicles per peak hour for left turn lanes. These resources also recommended how many lanes are needed on collector and arterial roadways to optimally handle various levels of traffic per peak hour. They suggest two lanes for collector and arterial roadways with less than 1,400 vehicles per peak hour, four lanes for collector and arterial roadways with 1,400 to 2,400 vehicles per peak hour, and six lanes for collector and arterial roadways with 2,400 to 3,400 vehicles per peak hour.

The consultant team applied these criteria to determine what roadway improvements may result from each station site's implementation. Specifics for each station location are as follows:

1. Downtown Rockford Station

The Downtown Rockford Station site would have direct access from S. Main Street, just north of Morgan Street. Based on its review of the existing roadway network and intersection geometries, the consultant team recommends adding left and right turn lanes at S. Main Street and the station entrance, Wyman and State Streets, and State and Church Streets.

No additional travel lanes or intersection improvements are needed because of traffic generated from the station site. (Please see Appendix E, Highway Improvement Maps, HWY-1 for locations of recommended improvements and the Summary of Highway Improvements.)

2. Alpine Road Station

The existing signalized intersection at Alpine and American Roads would likely provide access to the Alpine Road Station site. The consultant team recommends intersection improvements or additional turn lanes at the intersections of Alpine Road with Harrison Avenue and Newburg Road.

It would require some additional travel lanes along Alpine Road from Newburg Road to Hollow Road and some capacity improvements at Harrison Avenue and Hollow Road. (Please see, Appendix E, *Highway Improvement Maps*, HWY-2 for locations of recommended improvements and the Summary of Highway Improvements.)

3. Perryville Road Station

The Perryville Road Station site would directly access S. Perryville Road, just north of the bridge over the railroad tracks. The consultant team recommends intersection

improvements or additional turn lanes at the intersections of Perryville Road with Linden Road and Harrison Avenue.

This station site would require additional travel lanes along Perryville Road north of Linden Road to Harrison Avenue. Harrison Avenue would also require some capacity improvements. (Please see, Appendix E, *Highway Improvement Maps, HWY-3* for locations of recommended improvements and the Summary of Highway Improvements.)

4. Station for the Tollway Station Point

The station site for the Tollway Station Point would require access from a realigned roadway, regardless of which site is selected. The relocated Town Hall Road's new intersections with U.S. Route 20, a proposed access road south of U.S. Route 20, and a relocated Irene Road, would need to meet the traffic volume requirements of the area's surrounding developments and commuter rail station.

Town Hall Road's proposed five lane cross-section should provide enough capacity to accommodate this station site's traffic. Its extension to Newburg Road, however, will require turn lanes at this intersection as well as capacity improvements on Newburg Road. (Please see, Appendix E, *Highway Improvement Maps, HWY-4* for locations of recommended improvements and the Summary of Highway Improvements.)

5. Downtown Belvidere Station

The Downtown Belvidere Station site would have good access because it lies within Belvidere's Central Business District and its grid roadway network. The consultant team devised the station site's likely access and circulation routes (which accounted for the one-way streets) and recommended intersection improvements for the intersections of Main/Locust, Locust/Whitney, State/Locust, State/Logan, and State/Buchanan.

The existing roadway segments should adequately handle the traffic volumes that the station site would generate. Therefore, the consultant team recommends no improvements. (Please see Appendix E, *Highway Improvement Maps, HWY-5* for locations of recommended improvements and Summary of Highway Improvements.)

6. Improvements by Others

This study's recommended improvements should be coordinated with a number of roadway improvements that are being planned or design engineered. These projects include the following:

- IDOT's State Street (U.S. Business Route 20) Improvements from Rockton to Meridian Roads in Winnebago County
- IDOT improvements of South Main Street (IL Route 2): U.S. Route 20 to Downtown Rockford
- Winnebago County Perryville Road and Bridge widening

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- Relocation of Town Hall Road from Newburg Road to U.S. Route 20
- Interstate 90/Irene Road Interchange
- Harrison Avenue Corridor Improvement Project (11th Street to Mulford Road)

Projected Changes in Employment and Population

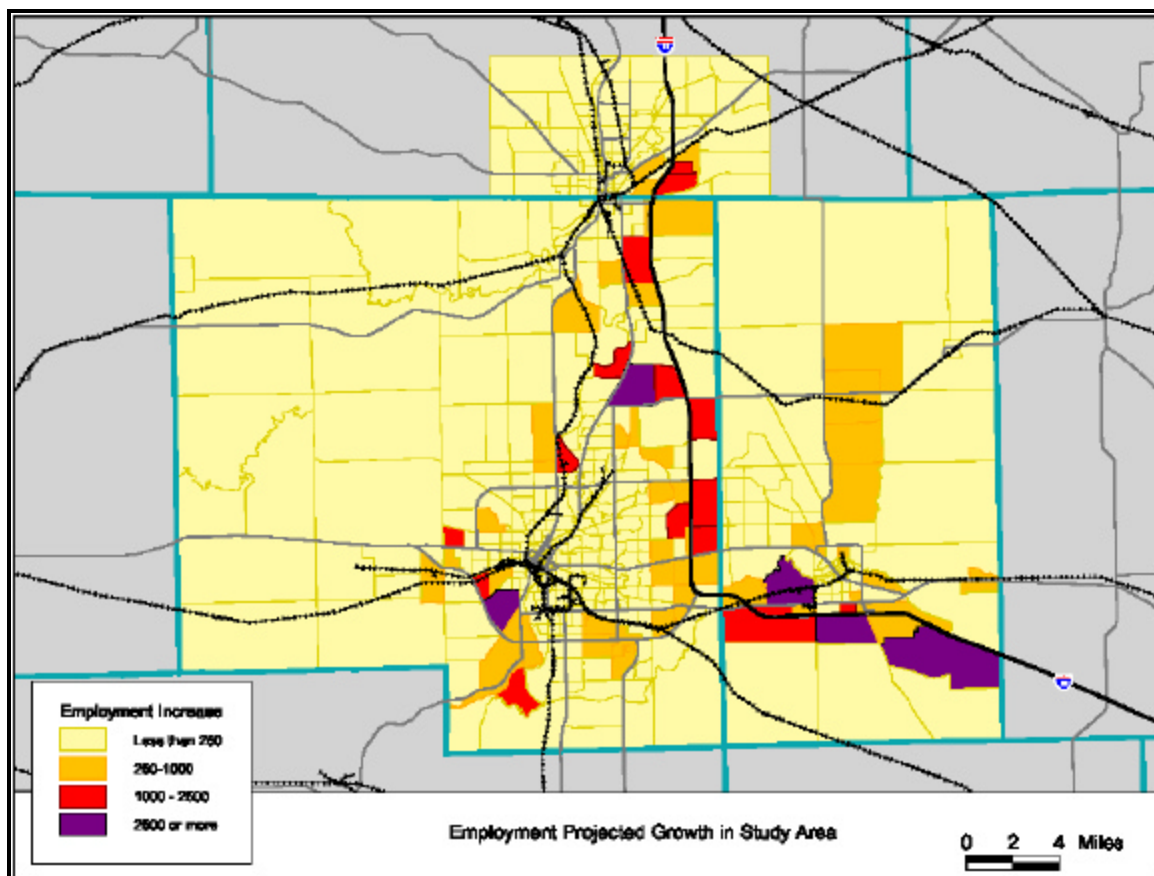
The Rockford Area Transportation Study develops projections for employment and population. Using data for employment and dwelling units by zone, the changes that are projected in these attributes between the year 2000 and 2025 can be identified.

Using the RATS projections, data was graphically summarized to show:

- Change in employment 2000 – 2025
- Change in dwelling units 2000 – 2025

Employment Growth

The following graphic shows projected employment changes between 2000 and 2025 in the Rockford Area Transportation Study area. Areas with projected employment increases of 2,500 jobs or more are shown in purple, areas with projected employment increases between 1,000 and 2,499 are shown in red, and areas with projected employment increases between 250 and 999 are shown in gold. The remaining projected employment increases appear in yellow. Most of the projected employment growth will likely occur near the Greater Rockford Airport and Interstates 39 and 50 at Rockford and Belvidere's outer edges. This projected growth is especially pronounced near Belvidere's Tollway Station Point and the Daimler-Chrysler plant.

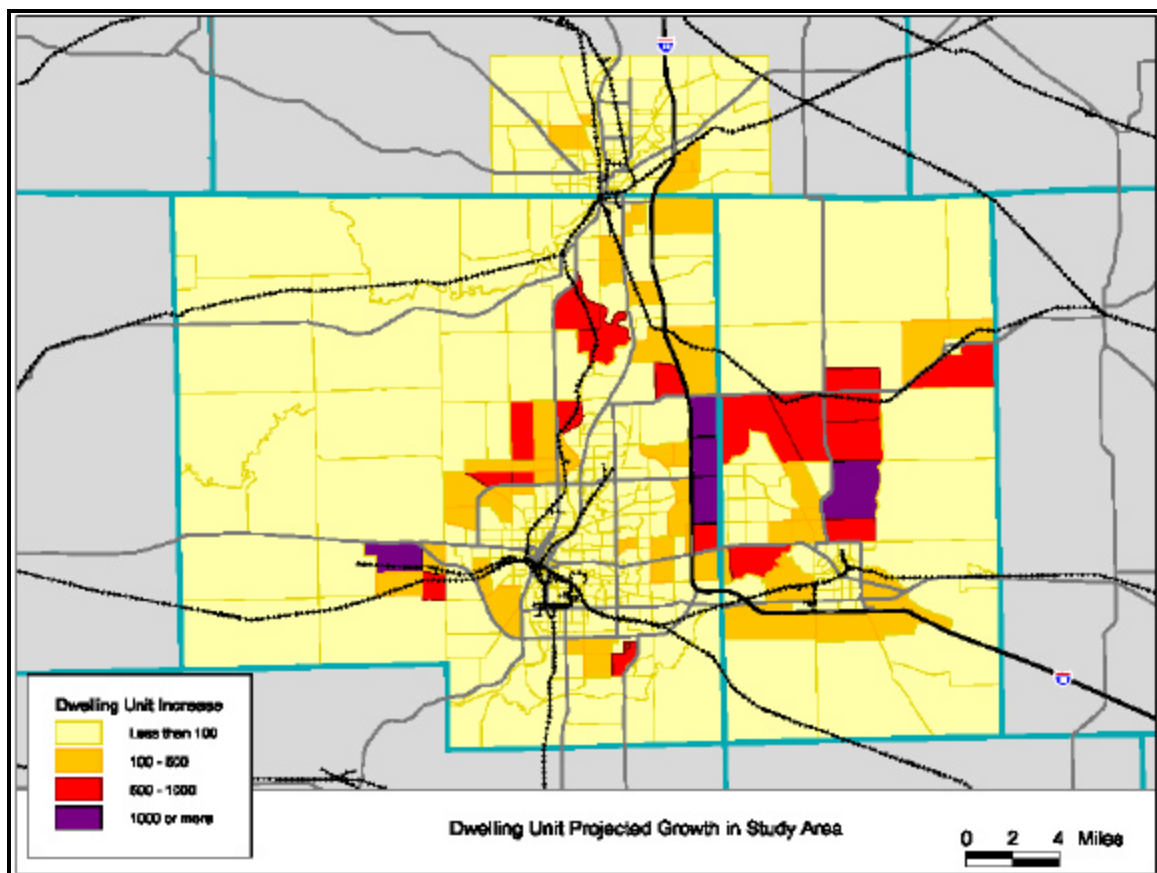


Projected Employment Growth

Population Changes

For this study's purposes, changes in the number of dwelling units represent changes in the population. Similar to the employment growth graphic, the following graphic highlights where the study area's projected population growth will likely occur. Purple areas will likely have 1,000 or more new dwelling units, red areas will likely have 800 to 999 new dwelling units, gold areas will likely have 100 to 799 new dwelling units, and yellow areas will likely have less than 100 units.

Rockford and Winnebago County will likely continue the strong population growth that they experienced from 1990 to 2000. Rockford experienced a 7.7% increase in its population, while Winnebago County grew by 10.1%. The greatest new population growth will likely occur near the Nottingham Manor neighborhood, north of Rockford; near the merge of Route 20 and Business Route 20, west of Rockford; between Interstate 39 and the Winnebago-Boone County Border, mostly east of Rockford; and in areas of central Boone County.



Projected Population Growth

III. PROPOSED INFRASTRUCTURE IMPROVEMENTS

The consultant team has proposed cost-effective improvements to the existing rail infrastructure in order to increase the chances of successfully introducing commuter rail service to the Greater Rockford Area. With intense competition for limited funding, keeping costs down is essential to securing funding. The following identified improvements are based upon Metra and other commuter railroad operator's standards and safety requirements as well as the operating requirements of freight operators who would share tracks with this proposed commuter rail line. The Union Pacific and Canadian National Railroads have indicated their support for this project and accept shared freight and commuter rail use of this corridor since implementation of the proposed commuter rail line will improve the existing freight infrastructure and help the freight operators more effectively meet their commitments.

Cost estimates for the improvements discussed below are contained in *Appendix G: Order-of-Magnitude Cost Estimates for Infrastructure*. They are based on the consultant team's discussions with the Union Pacific and Canadian National Railroads' engineering

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and operating personnel and include infrastructure that is east of Marengo. The consultant team included these items since it assumed that Metra will not extend service to Marengo in order to determine if commuter rail service to Boone and Winnebago Counties from Big Timber Road in Elgin can stand on its own. If Metra implements commuter rail service to Marengo, the improvement costs for infrastructure east of Marengo will not be required. The following sections briefly discuss the track improvements that would be required to add commuter rail service from Big Timber Road in Elgin to downtown Rockford.

Track Upgrades

As noted in Section I, *Project Background and Introduction*, the Union Pacific and Canadian National Railroads' tracks are generally in good condition, except for the Union Pacific tracks west of Belvidere Yard. The Union Pacific and Canadian National Railroads have sufficient maintenance and capacity to handle their existing light freight use. If the proposed commuter rail service is implemented, it will be necessary to improve the alignment's tracks to increase speed, reliability, and safety. The following improvements are proposed for bringing the track up to FRA Class 4 Standards:

1. Replace approximately 350 to 600 ties per mile assuming that the Union Pacific Railroad's scheduled project to renew 1,000 ties per mile occurs in the next few years;
2. Surface the alignment's entire length with additional ballast and increase its maintenance schedule so that the track will receive and hold onto its FRA Class 4 status;
3. Replace all non-controlled cooled rail, which includes approximately 22.4 miles of the Union Pacific Railroad's tracks;
4. Improve the minor drainage problems that are anticipated on the alignment; and
5. Improve minor problems that are anticipated on the alignment's bridges and possibly convert the two short, open-deck bridges to ballast decks in order to improve the comfort of riders who would travel over them.

Rail Connections

The proposed commuter rail alignment requires a connection between the Canadian National and Union Pacific Railroads west of Mulford Road and another connection between the Union Pacific Railroad and Metra near the Big Timber Road Station. Cost estimates for both of these connections are contained in *Appendix G: Order-of-Magnitude Cost Estimates for Infrastructure*.

The conceptual design for the proposed rail connection west of Mulford Road includes a No. 20 crossover, which would allow commuter rail trains to travel 50 mph between the Canadian National and Union Pacific Railroads. This crossover would consist of two turnouts and the track between them.

Freight trains could use this connection if the Union Pacific Railroad's tracks are removed west of Mulford Road under the Rockford Rail Consolidation Plan. This scenario would eliminate one of the required turnouts and might allow this connection to receive some or all of its funding from implementation of the Rockford Rail Consolidation Plan.

The connection between the Union Pacific Railroad and Metra near Big Timber Station in Elgin would require a high speed No. 20 turnout from Metra's eastbound main line to the Union Pacific Railroad. It would also likely require a No. 15 crossover (30 mph) or better to replace an existing No. 10 crossover (15 mph) so that commuter trains could run between Metra's westbound main line and the new connection to the Union Pacific Railroad. (Since the No. 10 turnout is currently undersized for Metra's operation, Metra may replace it outside of this project's implementation) If Metra extends its service to Marengo, which is currently under study, Metra would most likely fund for the Big Timber connection in this service extension project.

Passing Sidings

Although traffic levels on the Union Pacific and Canadian National Railroads are currently light, passing sidings are needed for the proposed alignment's single-track portions. These passing sidings would allow freight and commuter trains the flexibility to meet and pass each other, which is highly important to the railroads and their customers. The number of sidings required will need to be negotiated with the railroads during the design phase and could include up to three passing sidings. The cost estimates found in *Appendix G* include costs for two new sidings on the Union Pacific Railroad and an upgrade of Canadian National's Buckbee Siding.

Since most of the Union Pacific's Belvidere Subdivision currently runs through farm land, adding sidings now would not adversely impact surrounding land uses. However as communities build up along the railroad, opposition could increase, which could force mitigation measures to address the concerns of the new communities. This potential community opposition would not likely stop construction of the sidings because they would be on railroad property.

Grade Crossing Improvements

Grade crossing safety is very important to the railroad industry. If commuter rail service is introduced to this alignment, the U.S. Department of Transportation may require certain grade crossing improvements. For this study's purposes, the consultant team has made the following assumptions as a first step in its analysis of grade crossing improvements:

1. All public grade crossings would have crossing gates;
2. All current grade crossing signals would need to be upgraded to typical Metra standards if commuter rail service is initiated.

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3. No grade crossing closures were anticipated in the cost estimates, although some grade crossings may be closed as part of a comprehensive grade crossing signal improvement program currently underway.
4. Given an increased awareness and desire to improve grade crossing safety, several of the alignment's busiest crossings may need to be considered for upgrade to four quadrant gates since implementation of this commuter rail line would change the frequency and speed of the area's trains.

The first three assumptions have been used for the basis for the cost estimates found in *Appendix G: Order-of-Magnitude Cost Estimates for Infrastructure*. Since federal and state laws do not require the use of four quadrant gates, they were not included in these cost estimates. A thorough evaluation of each grade crossing would be required to obtain more specific cost estimates in the next phase of work on this project.

Signal Upgrades

Union Pacific Railroad's Belvidere Subdivision currently has no signals, while the Canadian National Railroad's Freeport Subdivision currently has an Automatic Block Signal System. Although some of Metra's service currently operates on non-signalized track or with less sophisticated signal systems, Metra would most likely require a Centralized Traffic Control System and possibly provisions for a future Cab Signal System. Either of these signal systems would maximize the railroad's capacity, safety, and service flexibility. The cost estimates contained in *Appendix G* anticipate the use of a Centralized Traffic Control System on both the Union Pacific and the Canadian National portions of the alignment.

Stations

During this study's initial stages, the consultant team and the Northern Illinois Commuter Rail Initiative identified five general areas for potential station sites, which included the Greater Rockford Airport, Downtown Rockford, East Rockford and Cherry Valley, the Tollway Station Point, and Downtown Belvidere. (This study only focused on communities west of Marengo.) As the study progressed, several possible station sites emerged for each of these general areas, which are described in the following section and summarized in *Appendix B: A Station Site Inventory and Comparison Matrix*.

Greater Rockford Airport

Airport Station – The Greater Rockford Airport is an important economic catalyst for the region, which is currently underutilized. The ability to link the Greater Rockford Airport to Chicago's commuter rail network may be the key link to attracting additional air carriers to the facility. The rail connection presents the following challenges:

- The main line of the Illinois Rail Net (the most feasible railroad serving the airport) currently runs along the airport's east side, while the terminal is located on the airport's west side. Rail access from the Illinois Rail Net to the terminal would involve some highway crossings and traffic management issues.

- The Illinois Rail Net currently uses a twenty degree curve to connect with the Canadian National Railroad's Freeport Subdivision. This curve is too tight for typical commuter rail equipment and therefore would require acquisition of adjacent property to improve the curve. (See Drawing EX-JCT in Appendix H for this curve's depiction.)
- Due to the route configuration, train service could operate to either the Downtown Rockford Station or the Greater Rockford Airport, but not both. One alternative would be to run an airport shuttle between the Greater Rockford Airport and a station at one of the East Rockford sites or the Tollway Station Point. Although this option would likely provide greater frequency than alternating train destinations, the "two seat" service could discourage some potential passengers.

Given the airport connection's importance, however, these issues will require further study in possible subsequent phases.

General Area near Downtown Rockford

Downtown Rockford Station – This station site is located south of Rockford's Central Business District on the Canadian National Railroad's Freeport Subdivision. The proposed Downtown Rockford Station lies north of the Canadian National tracks and south of the Iowa, Chicago & Eastern tracks between S. Winnebago Street and S. Main Street on a station site that Amtrak last used in 1982. During its inspection, the consultant team found that the old station was structurally sound and that the station canopy and platform was in reasonably good condition. Space is available for an appropriate number of automobile parking spaces as well as connecting bus services. This proposed station site is also near the primary layover storage site that is recommended.

The Canadian National Railroad owns the old Amtrak station and adjacent property. They have advised the consultant team that this property would be available for sale or lease.

General Area near East Rockford and Cherry Valley

Alpine Road Station - Located approximately 5.5 miles from the proposed Downtown Rockford Station on the Canadian National Railroad, the proposed Alpine Road Station site is one of three being considered for eastern Rockford. This site is located west of Alpine Road and south of the Canadian National tracks, within the Pine Manor Park subdivision. The City of Rockford chose this station site because it is located within a populated area and is readily accessible to U.S. Route 20; Interstate 39; and Alpine Road, a major collector in eastern Rockford.

The proposed station site is currently within a Superfund site, but clean-up activities are underway and it is anticipated that the site will be free of its Superfund status by the time commuter rail service is introduced to the area.

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Mulford Road Station – The proposed Mulford Road Station would lie on a 3,200 foot long connector track that would link the Canadian National and Union Pacific Railroads and would have room for expanded parking. This site has good access from arterial roadways and is approximately one mile east of the Alpine Road Station site.

Perryville Road Station - The Perryville Road Station site lies northwest of Perryville Road and the Union Pacific tracks inside of Cherry Valley. It can accommodate up to 1,500 parking spaces and is within walking distance of housing subdivisions on both of Perryville Road. It also has very good access to U.S. Route 20, Harrison Road, and Interstate 39. Drivers on Interstate 39, in fact, can see this site from the highway.

Winnebago County has scheduled road and bridge improvements on Perryville Road. It is located one mile east of Mulford Road and eight miles from the Downtown Rockford Station site.

It is anticipated that one of these three East Rockford/Cherry Valley Station sites will be included in the corridor's final service plan.

Tollway Station Point

Tollway Station Point - The Northern Illinois Commuter Rail Initiative and Growth Dimensions are currently reviewing several alternative locations for this proposed station site. The commuter rail station would become an essential part of a transit oriented development to be built west of the Daimler-Chrysler plant. In any event, this site would border both sides of the Illinois Tollway (Interstate 90) between Belvidere and Cherry Valley and would have over 1,000 parking spaces to serve potential riders who would prefer to use commuter rail rather than drive Interstate 90 to Chicago and its western suburbs.

An approximately three mile long rail alignment would be built south of the Union Pacific's switching yard and north of U.S. Route 20 to serve the Tollway Station Point. This alignment would serve as a southern by-pass track around the Union Pacific Railroad's switching yard, which supports the Daimler-Chrysler plant. A new interchange at Irene Road would provide direct access to this transit oriented development from Interstate 90.

General Area near Belvidere

West Belvidere Station - The West Belvidere Station site lies south of the Union Pacific tracks, east of South Appleton Road, west of Columbia Avenue, and north of Sixth Street, approximately one mile west of Downtown Belvidere. It has enough room for approximately 400 parking spaces and is privately owned. Given its close proximity to either Downtown Belvidere or the Tollway Station Point, it could be an alternative to the Downtown Belvidere Station site or an interim site that would be eliminated once a station was built for the Tollway Station Point. It could also act as the commuter rail line's interim terminal until the Tollway Station Point alignment was built and other rail infrastructure improvements made to the Canadian National Line and the Union Pacific Line west of Belvidere Yard.

The existing track structure west of Belvidere Yard has allowable maximum speeds of 30 mph and 10 mph. However, the existing track structure from Belvidere Yard east toward Elgin is suitable for passenger rail service with the upgrades described in *Section I: Project Background and Introduction*. The Northern Illinois Commuter Rail Initiative's concern that a temporary station would have limited value and be difficult to close once established has reduced interest in this site as an interim station. Moreover, Belvidere is not interested in this site as a permanent station because it would rather have a commuter rail station that would support the vitality of its downtown.

Downtown Belvidere Station – The Downtown Belvidere Station site is bounded by Pleasant Street on the north, Buchanan Street on the south, Main Street on the east, and Whitney Boulevard on the west. Suitable parking is available just west of Main Street and at other areas near the proposed station. A station at this site could generate further development in Downtown Belvidere.

Layover Facility

The proposed commuter rail service would require a layover facility for storing and cleaning the trains overnight as well as helping to position the trains for the morning service. A layover facility should therefore be built near the end of the alignment, preferably west of the terminus. Metra currently has a layover facility in downtown Elgin to serve its Milwaukee District-West Line. The following lists detail the layover facility's operational requirements and possible locations for the layover facility along the alignment:

Layover Facility Requirements

1. Sufficient capacity to store trains required for the inbound morning service;
2. A secure area to minimize vandalism and provide a safe working environment for Metra's employees;
3. Power to run the train's heaters and air-conditioners during the night;
4. A location that is distant from residential areas;
5. A source of water for coach cleaning;
6. Multiple points of rail access to main track (double ended yards preferred); and
7. Vehicle access to the facility for Metra (or other commuter rail) employees.

Possible Layover Facility Locations

The following sites can potentially house the proposed layover facility:

1. A yard west of Winnebago Street and the proposed Downtown Rockford Station site that already exists;
2. The City of Rockford's "City Yards" at the end of the Union Pacific Belvidere Subdivision; and
3. An area west of Alpine Road near the proposed Alpine Road Station.

IV. SERVICE PLAN OPTIONS

Metra's Milwaukee District West Line has two stations in downtown Elgin and a newer station at Big Timber Road that is located within 0.5 miles of Randall Road, a major north-south arterial that serves many communities and businesses west of the Fox River. Metra currently stores its equipment overnight at a Downtown Elgin location. Some trains originate and terminate at this location, while others originate and terminate at Metra's Big Timber Road Station. Metra must position (dead-head) the trains' equipment 3.2 miles between the Downtown Elgin layover facility and the Big Timber Road Station.

The adopted service plan must operationally fit into Metra's existing service since Metra's existing infrastructure east of Elgin has limited capacity to operate express service and has only a few crossovers, which are essential for the proposed express trains to regularly overtake scheduled local trains. Metra also demands that the plan proposed for service west of Big Timber Road not cause any degradation of existing Metra operations.

Phased Growth Service Plan

A Phased Growth Service Plan can be implemented to correspond with the project's funding cycle over an extended period of time. The Phased Growth Service Plan would determine limits for infrastructure improvements at each determined implementation stage. For example, the Union Pacific Railroad could lease a track at the Belvidere Yard on an interim basis and provide head-end stand-by power on a temporary basis for two or three commuter trains until a permanent storage facility was built at Rockford. Another example is to gradually phase in more trains as ridership increases in order to keep initial start-up costs low. One train set could stage at Marengo and another train set could stage at Rockford, depending upon service demand.

Although the Phased Growth Service Plan can keep costs down, it would require sensitivity to funding issues associated with the phased service increases. Funding may receive limited support, if service is not provided to the entire area where funding is sought.

Blended Metra Service Plan

An alternative plan would be to have Metra operate some of the service that it currently runs to Big Timber Road Station on the Milwaukee District West Line go to Belvidere and Rockford. This Blended Metra Service Plan would require trains that originate in Belvidere or Rockford to meet existing scheduled departures for Big Timber Road or (Downtown) Elgin Station. Westward trains going to Rockford could lay over there for the next morning's eastward trips to Chicago.

Service Option 1 assumes that Metra will extend service on the existing Milwaukee District West Line from Big Timber Road or (Downtown) Elgin Station to Marengo. All

operating costs identified within Table IV-1's components only address the 28 miles of railroad and facilities that are required west of Marengo. The schedules within Option 1 would blend with Metra's existing weekday train schedules for both directions west of Big Timber Road Station. However, Metra would not provide any weekend or holiday service west of the (Downtown) Elgin Station, where weekend and holiday service currently begins and ends. Option 1 also assumes that Metra would provide three a.m. peak hour trains and one off-peak train to Chicago and three p.m. peak hour trains and one off-peak train from Chicago. This service would operate Monday through Friday.

Service Option 2 assumes that Metra will not extend the existing Milwaukee District West Line to Marengo. Therefore, this potential commuter rail service will extend Metra's existing Milwaukee District West Line to Belvidere and Rockford without intermediate stops in McHenry County. All costs that are identified within Table IV-1's listed components address the 49 miles of railroad and facilities required west of the Big Timber Road Station.

This option, however, includes extending some of the weekend and holiday service that currently stops at (Downtown) Elgin Station to Belvidere and Rockford. The costs identified for this additional service address the 52 miles of railroad and facilities required west of the (Downtown) Elgin Station.

Express Service Options

A park-and-ride station at the Tollway Station Point might draw a significant number of patrons from the I-90 Tollway and prompt demand for express trains that would only stop at stations in Boone and Winnebago Counties, Schaumburg, Bensenville, Franklin Park, and Chicago Union Station. This service could be offered during peak and off-peak times. These trains would have running times of less than two hours between Rockford and Chicago Union Station. The scheduled running times between Tollway Station Point and Bensenville (O'Hare Airport) would be 1-hour and 10-minutes.

Service Option 3 assumes that Metra will not extend its Milwaukee District West Line to Marengo. Under this option, the trains that are shown in the schedule west of Big Timber Road under this option would operate as express trains in both directions east of Big Timber Road on Metra trackage. As in Option 2, Metra would extend some of its weekend trains that currently stop in Elgin to Belvidere or Rockford.

This service plan would result from a decision within a marketing plan to provide rail service from Downtown Rockford to Downtown Chicago within two hours. Service from Rockford to a major job catchment area at Schaumburg would be approximately 1 hour 15 minutes under this plan. All costs identified within Table IV-1 address the 49 miles of railroad and facilities required west of Big Timber Road Station, the weekend extension of service from (Downtown) Elgin Station, and the costs of operating separate express trains on an additional 37 miles of Metra trackage.

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Each of the aforementioned service options are compared in the table below.

Table IV-1 - Comparison of Estimated Operating Costs Between Service Options

Expense Category	Estimated Operating Cost		
	OPTION 1	OPTION 2	OPTION 3
Maintenance of Way (including signal)	\$587,347	\$1,014,509	\$1,014,509
Station Maintenance	\$118,450	\$159,650	\$159,650
Equipment Maintenance	\$1,293,449	\$3,070,549	\$4,219,585
Equipment Cleaning	\$204,970	\$263,392	\$263,392
Crews and Supervision	\$416,986	\$892,069	\$1,239,671
Locomotive Consumables	\$194,645	\$477,607	\$755,447
Trackage and Dispatch	\$563,268	\$1,382,166	\$2,186,648
Total in 2004 Dollars	\$3,379,116	\$7,259,942	\$9,838,901
Total in 2009 Dollars	\$3,917,321	\$8,416,262	\$11,405,983

If the Northern Illinois Commuter Rail Initiative were to establish its own operating entity for the proposed commuter rail service, it would incur additional costs. These costs were not included in the above table because they require further discussion within the Northern Illinois Commuter Rail Initiative as well as further study. However, the consultant team has identified these potential cost categories below:

- Administrative Personnel Costs (for the agency, not the service),
- Staff Travel Expenses,
- Insurance Premiums (Determined by Train Miles and Passengers),
- Insurance Reserve (Determined by Train Miles and Passengers),
- Marketing and Advertising, and
- Allocated Expenses (Negotiated Expenses to be Shared with the Railroads and Metra).

Another potential expense would cover implementation of a scheduled “shadow” bus service that would serve the same stations as the commuter rail service west of Big Timber Road during off hours. New Start services often provide patrons with “protective bus service,” which would allow commuters to travel along the rail line when they miss the last train home or when they want to travel when the trains are not running during the service period.

Weekend and Holiday Service

Ridership statistics and area attractions that generate weekend and holiday travel will dictate weekend and holiday service patterns. Weekend service would require extending Metra service from the (Downtown) Elgin Station since Metra does not provide weekend service to the Big Timber Station. The schedules can be tailored for a day in Chicago, a day in the Rockford/Belvidere area, or a combination of both.

Shuttle Service Options

If Metra is unable serve stations in Boone and Winnebago Counties, the consultant team proposes that a shuttle service be created to provide transportation to and from Metra's Milwaukee District West Line terminus.

A. Shuttle Service Option to Marengo

This option would result from creation of a regional transportation authority to operate a connecting service from Belvidere or Rockford to a new Metra terminus at Marengo. Commuters would have to change trains at the Marengo Station. Weekend and holiday service would also be provided.

B. Shuttle Service Option to Big Timber

This option would result from creation of a regional transportation authority to operate shuttle service from Belvidere or Rockford to Big Timber Road or Elgin if Metra decides not to extend its Milwaukee District West Line. A change of trains would be required at either of these interchange points.

A shuttle service would allow a newly created regional transportation authority to purchase or lease diesel multiple units (DMU), which operate more efficiently than conventional locomotives hauling bi-level commuter coaches. These new self-propelled units are bi-directional (do not require turning at each end) and are reported as easier to maintain than conventional train and locomotive sets.

Airport Service Options

The Greater Rockford Airport is located approximately five miles south of Rockford's Central Business District in southwestern Rockford. At the airport's eastern boundary near the passenger terminal is the Illinois Rail Net. The Canadian National Railroad uses a short piece of the Illinois Rail Net just north of the airport to serve one of its freight customers there.

Since the Greater Rockford Airport currently has limited commercial flight activity, it is not expected that the Northern Illinois Commuter Rail Initiative would initially pursue funding for an improved rail connection to the airport. Rail access to the airport could be initiated in cooperation with the airport as part of a package of improvements to attract additional carriers. Implementation of commuter rail service to the airport would require major track, signal, and rail crossing upgrades. As an interim measure, a scheduled bus

shuttle could be provided to and from one of the proposed East Rockford station alternatives where the train schedule could be coordinated to provide genuine connectivity to airline schedules. This arrangement is similar to the one currently provided by the Trinity Railway Express to DFW airport. It could be operated until commercial air service increases sufficiently to justify the permanent link.

Another consideration for service to the Greater Rockford Airport is the very large UPS operation at the airport (the second largest hub sorting facility in the country). The Greater Rockford Airport and its associated operations employ 4,000 people, while the entire census tract containing the airport has a total of 9,170 employees. The airport and vicinity could potentially generate significant commuter rail ridership if service was provided to the airport and airport-related locations. A connecting bus or van could initially serve these airport related sites.

V. ENVIRONMENTAL IMPACTS

The consultant team and the Northern Illinois Commuter Rail Initiative had sought station sites where negative environmental impacts could be avoided or minimized. This section looks at each of the proposed station sites and its potential impact on the environment. (Each station site's environmental conditions are previously discussed in Section I, while each station site's environmental impacts are summarized in the Environmental Impacts and Issues Matrix found in Appendix C.)

1. Downtown Rockford Station

Since the Downtown Rockford Station is not located near identified 4(f) resources, its construction should not physically impact these resources.

Air quality and noise and vibration impacts should be considered for some of the commercial properties that front South Main Street across from the proposed station site. Adjacent residential subdivisions, however, should be far enough to avoid adverse air quality and noise and vibration impacts. Additional studies are recommended to verify the condition.

Although Kent Creek is on the other side of the tracks from the station site, station construction may impact Kent Creek's 100-year floodplain and less than one acre of associated wetlands. The Canadian National Railroad currently crosses over Kent Creek east and west of the proposed station site.

2. Alpine Road Station

The proposed Alpine Road Station's access road and parking could encroach upon Ekberg Park, which has 4(f) protection since it is used for recreational purposes, as its tennis and basketball courts show. The consultant team believes that these impacts can be avoided, but recommends further study for confirmation.

Air quality, noise, and vibration impacts will have to be analyzed because residential areas surround this station site and since Swan Hillman Elementary School is directly north of it.

The station footprint will affect approximately 4.1 acres of the 100-year floodplain of an unnamed tributary, which parallels the rail line tracks at the proposed station site.

This proposed station site may also contain special and hazardous waste. Based on a remedial investigation study of this site, it is likely that the station's construction will involve special and/or hazardous waste removal and disposal. Since the consultant team cannot currently determine the extent of this involvement, additional testing will be required to determine the extent of this site's contamination and the remediation measures required for clean-up and disposal.

It is also possible that this site's environmental issues will be eliminated before commuter rail service could be implemented on this line. The Illinois Environmental Protection Agency is currently moving forward with this site's clean-up activities and currently anticipates that it will finish cleaning this site in three to five years. The potential for environmental concerns still exists, however the Illinois Environmental Protection Agency could have these concerns resolved during this project's possible next phase.

3. Perryville Road Station

The consultant team expects minimal impacts on the potential Perryville Road Station site's environmental resources. The main impact potentially concerns Southwest Community Park. The station footprint will require approximately 9.4 acres of park property. However, use of this park may not constitute 4(f) involvement since it does not appear to be used for recreational purposes.

Nearby residential developments located west and southeast of the station site may face air quality, noise and vibration impacts.

4. Tollway Station Point Station

This proposed station site's access roadway improvements will impact approximately 1.2 acres of identified wetlands and an unnamed creek. The approximate acreage for the floodplain's impacts is not currently available since the unnamed creek's floodplain is not defined.

Depending on the station site for the Tollway Station Point, potential sensitive receptors for air quality, noise, and vibration impacts could include the farm house north of U.S. Route 20, just west of Irene Road; the residential subdivision south of U.S. Route 20, west of Irene Road; and the farm house southeast of U.S. Route 20 and Irene Road.

5. Downtown Belvidere Station

The main environmental impacts for consideration at the Downtown Belvidere Station site are air quality, noise, and vibration. Due to its proximity to sensitive receptors like the nearby residential area and the Boone County Historical Museum, impact analyses need to be performed.

The leaking, underground storage tank site at Boone County Auto Parts along Whitney Boulevard may involve the station site. The extent of the leak should be further investigated to determine if it has seeped toward the station site.

VI. POTENTIAL RIDERSHIP

The consultant team used two different methods to forecast ridership. First, they examined ridership and mode share experiences of other long distance commuter rail lines in Chicago and other parts of the United States to determine which of these rail lines had similar characteristics to that proposed for the Rockford-Chicago market. For these similar lines, they calculated per capita ridership. Second, they used existing travel data to estimate the size of individual travel markets and build a ridership estimate for each of the proposed stations and totaled these estimates to form the line's overall ridership estimate. The consultant team then derived a best estimate for total ridership, which incorporated both of these methodologies. A more detailed ridership estimate will occur later, if this line is still found feasible in later study phases.

Per Capita Ridership

The per-capita ridership approach assumes that this proposed rail line would generate ridership levels that are similar to other long distance commuter rail services. In Metra's service area, this proposed rail line is unique because it would extend approximately 90 miles from Chicago and end in a large, metropolitan area, Rockford-Belvidere, which has a combined total population of 170,935 residents.

The following table compares the Rockford-Belvidere area with outlying cities that have commuter rail connections to major U.S. cities. It shows the population of each outlying city, identifies the central city, and gives the approximate distance from the outlying city to the central city. The table also shows the outlying station's estimated weekday ridership (i.e., boardings and alightings), the number of weekday trains in each direction between the outlying and central cities, and the weekday transit ridership per 1,000 residents.

Table VI-1 – Comparison City Ridership

City	Pop. ¹	Central City	Miles	Ridership	Daily Trains	Boardings per 1000
Riverside	255,156	Los Angeles	59	3840 ²	16	15.0
San Bernardino	185,401	Los Angeles	60	1314 ²	19	7.1
Rockford/Belvidere	170,935	Chicago	90	---	---	---
Lancaster	118,718	Los Angeles	73	1179 ²	9	6.6
South Bend	107,789	Chicago	94	600-700	5	6.0
Kenosha	90,352	Chicago	66	750	9	7.7
Gilroy/Morgan Hill	75,020	San Francisco	79	452	4	6.0

1 Census 2000 Data

2 Ridership information for the Los Angeles area is based on a.m. peak period, peak direction ridership. Based on information from other properties, this has been increased by 50% to approximate boardings for the full day, and then doubled to estimate total ridership.

This table shows a wide variety of ridership, ranging from about 6.0 trips per 1,000 residents each for Gilroy/Morgan Hill and South Bend, to about 15.0 trips per 1,000 residents for Riverside. Many of the comparison cities are included in larger metropolitan areas; however, the city-to-city comparison is useful since it yields per capita ridership that the consultant team can use for estimating the Rockford-Belvidere metropolitan area's ridership.

Ridership per capita generally drops off with increasing distance and decreasing service, so it would be reasonable to assume that if service to Rockford were comparable to, or more than, service from Kenosha, ridership per 1,000 Rockford residents should be between 6.0 and 7.0 boardings per weekday. Applying these ratios, the following table shows estimated ridership (inbound and outbound boardings) from Rockford, Belvidere, Marengo, and Huntley.

Although South Bend is probably the most comparable city for the Chicago region; South Bend has only one inbound a.m. peak train and therefore is not comparable to the Rockford-Belvidere metropolitan area's proposed service. Of the five inbound trains, only one train provides service early enough for people to arrive in Chicago for the full work day.

Table VI-2 – Estimated Ridership Per Capita Method

City	2003 Population Estimates	Lower	Upper
Rockford	151,725	910	1,062
Belvidere	22,927	138	160
Marengo	6,902	41	48
Huntley	11,769	71	82
TOTAL		1,160	1,353

It should be noted that Metra ridership has been on a slight decline through most of the system. The stations with the most improved ridership performance are the terminal

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stations since they are apparently drawing people from a larger market area. The most recent systemwide train counts (Commuter Rail System Station Boarding/Alighting Counts: Summary Results Fall 2002, Metra Office of Planning and Analysis) highlight continued ridership growth in the fare zones that are over 30 miles from downtown and decreased ridership in the fare zones closest to Chicago. These have been consistent trends since data collection began in 1997.

Ridership by Market Segment

An examination of the following travel market components led to development of this method for estimating ridership:

- Traditional A.M. and P.M. Home-to-Work Trips,
- Off-Peak Ridership (Mid-day and Evening),
- Reverse Commute Trips,
- Weekend Ridership and Special Events, and
- Airport Ridership.

The consultant team calculated the number of potential riders that would likely use each of the proposed station areas and combined them to produce an overall estimated ridership for the proposed commuter rail extension.

Traditional A.M. and P.M. Home-to-Work Trips

For the traditional a.m. and p.m. home-to-work trips, the consultant team used Census 2000 Journey-to-Work data to identify travel flows between the proposed rail line's service area west of Marengo and points along the rail line, including downtown Chicago. The consultant team identified an approximate service area using the above census tracts for each origin station (or group of stations) and an approximate service area for each destination station (or group of stations).

The consultant team also examined similar service areas from peer cities to determine typical commuter rail mode shares in similar travel markets. They calculated rail mode shares from the Census 2000 Journey-to-Work data for each peer origin and destination pair of interest and applied them to this proposed rail line's Census Journey-to-Work travel data.

Table VI-3 – Comparison City AM and PM Home to Work

City	To	Miles	Service Lines	Inbound Trains Per Day	A.M. Peak Trains	Total Workers	By Rail	Percent by Rail
Lancaster	Burbank-Glendale*	66	1	9	5	700	65	9.29%
South Bend (Entire County)	CBD	94	1	5	1	47	4	8.51%
Kenosha (Entire County)	CBD	66	1	9	4	282	136	48.23%
Gilroy / Morgan Hill	San Francisco	79	1	4	2	160	30	18.75%
McHenry County	CBD	75	2	12	6	3906	2620	67.08%
Marengo –Huntley	CBD	62	1	20	5	185	98	52.97%

* Burbank and Glendale are the two final stops before central Los Angeles.

As shown in Table VI-3, the Census 2000 Journey-to-Work data shows varying commuter rail use for peer cities and for Marengo and Huntley whose residents can currently drive to the Milwaukee District West Line at Big Timber Road. The differences in rail transit use reflect differences in these transit agencies' service levels. In Lancaster, Kenosha, and McHenry County, service is provided throughout the day with three to six a.m. peak hour inbound trains. In Gilroy and South Bend, only four or five inbound trains run throughout the day with only two a.m. peak hour inbound trains from Gilroy and one a.m. peak hour inbound train from South Bend.

Approximately 99 percent of the South Shore Line's 183,000 annual riders are going into downtown Chicago, including almost 98 percent of riders who annually commute from South Bend, Indiana. The percent of commuters who travel from South Bend, however, is low since the South Shore Line only has one inbound a.m. peak hour train. Most commuters from South Bend, therefore, drive approximately 41 miles to Michigan City to board the South Shore Line there where more frequent peak hour service is available. South Bend has negligible reverse commuting on the South Shore Line because its schedules are not designed for this market.

A number of "push factors" help determine how many people will likely use commuter rail. These factors include the amount of congestion on alternative roadways; parking prices at the destination; the level of transit service; the work site's proximity to the destination commuter rail station; and the availability of transit connections at the destination, such as feeder or shuttle bus service. The mode split for the peer cities' journey to work by train is approximately 9% to 67%, with the aforementioned "push factors" governing the difference.

For Downtown Chicago, many of these "push factors" are in place, such as high congestion levels, high transit levels, high parking prices, densely clustered employment, and an interconnected transit network. For areas outside of Downtown Chicago, such as the Schaumburg-Hoffman Estates-O'Hare area, there is less congestion than in Downtown Chicago, typically free parking, more dispersed employment, and poor access between the work sites and the train station. Therefore, the consultant team applied a factor of 50% to Downtown Chicago trips and a factor of 10% to suburban employment

center trips. For the remote areas of Stephenson County, Illinois and Rock County, Wisconsin, the consultant team applied a factor of 30% to Downtown Chicago trips and a factor of 10% to suburban employment center trips. The following table shows the estimated commute ridership.

Table VI-4 – A.M. and P.M. Home-to-Work Estimated Ridership

City	Journey-to-Work		Estimated Ridership	
	To CBD	To Schaumburg-Hoffman Estates-O'Hare	To CBD	To Schaumburg-Hoffman Estates-O'Hare
Boone County	96	605	48	61
Winnebago County	175	550	88	55
Stephenson County	12	24	4	2
Rock County, Wisconsin	16	64	5	6
Total Inbound Boardings			144	124

Total Inbound and Outbound Boardings	288	248
Existing Ridership	120	0
Net Ridership	168	248

Off-Peak Ridership Potential

In order to estimate potential mid-day and evening ridership, the consultant team analyzed ridership to and from the four farthest outlying stations on the Union Pacific District Northwest Line. These stations are Harvard, Woodstock, McHenry, and Crystal Lake. Based on ridership experience at these four stations, mid-day ridership is approximately 25% of a.m. peak ridership, while evening ridership is approximately 2% of a.m. peak ridership. Applying this factor to the aforementioned estimated ridership yields an estimate of 39 mid-day riders and three evening riders in one direction. Ridership in both directions would be 78 mid-day and six evening riders.

Reverse Commutes

Using the same methodology that was used for calculating the traditional home-to-work commute, the consultant team calculated a mode split for trips from San Francisco to Gilroy and Morgan Hill. (The journey-to-work data indicated that there were no rail trips from Burbank or Glendale to Lancaster.)

Table VI-5 – Comparison City Reverse Commute Ridership

City	Central City	Journey to Work to CBD	Ridership
San Francisco	Gilroy-Morgan Hill	60	10

The consultant team applied this factor of 16.6% to the Census 2000 Journey-to-Work data for those living either downtown or adjacent to Metra's Milwaukee District West Line and working in Boone or Winnebago Counties. The following table represents census tracts that border the Milwaukee District West Line and shows the proposed rail

line's estimated reverse commute ridership. If this proposed rail line were built, people could access Milwaukee District West Line stations to reach Boone County or Winnebago County destinations. Only those counties along the proposed rail line are included in this estimate since other counties would require out-of-the-way transfers in downtown Chicago. Potential commuters will not likely travel from McHenry County to Boone or Winnebago Counties, given its relatively close proximity.

Table VI-6 – Reverse Commute Estimate

Portion of County	Journey to Work		Estimated Ridership	
	To Boone County	To Winnebago County	To Boone County	To Winnebago County
Cook County	4	193	1	32
DuPage County	4	12	1	2
Total One Direction Boardings				36
Total Ridership				72

Weekend Ridership and Special Events

The weekend ridership estimate is based on the relationship between weekday and weekend ridership on the Union Pacific District Northwest Line's outer four stations. At these stations, the Saturday boardings are 35% of weekday boardings and the Sunday boardings are 28% of weekday boardings. The total number of round trips from the above market components is 233. Applying these Saturday and Sunday factors would give the proposed rail line a Saturday round-trip ridership of 82 and a Sunday round-trip ridership of 65. These stations would have 294 total weekend boardings and alightings.

Special event ridership could significantly affect this service. The following table shows the major attractions in the Rockford-Belvidere metropolitan area and their attendance.

Table VI-7 – Major Area Recreation Attractions

Attraction	Attendance	Dates
Rockford Lightning	2,500 per game	Mid-November - Early March
Rockford Ice Hogs	3,000-5,500 per game	The End of October - Mid-April
Rockford River Hawks	2,100 per game	Mid-May - August
Rockford Motor Speedway	2,000-3,000 per event	50 events, April - October
"On the Waterfront" Festival	300,000-350,000	3 days, Early September
Boone County Fair	200,000	6 days, Early to Mid August
Magic Waters	2,500 - 3,500 per day	The End of May – Early September

Several key factors, such as distance, convenience, and attractiveness, would play a role in the use of commuter rail for recreational purposes. The key factor for successful systems is whether the activity is integrated with the train service. This includes having shuttle buses if needed timed to operate with the train schedule, coordinating advertising

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to highlight the train service, and activity opening and closing times coordinated with the train service. The costs of any ancillary services should reflect alternatives such as parking and traffic control (if free parking is provided, then the shuttle bus should be free, etc.).

For the Rockford area, the “On the Waterfront” Festival (located downtown) and the water park (which is served by three transit routes) would probably be the biggest draws to use commuter rail service. These events have the advantage of being all day activities, so the time spent on the train is a smaller part of the total time spent on travel and the event. Minor league sporting events are probably fairly significant draws, as the Rockford Metro Centre is conveniently located downtown.

A mode split of 1% for the “On the Waterfront” Festival and the Boone County Fair would add over 5,000 round trip passenger trips to the service’s annual ridership. A 2% mode split for Magic Waters would add an additional 4,400 round trip passenger trips.

Other significant sources of recreational activities include the Illinois Railway Museum (on the rail line), hiking and biking along the numerous paths and trails in the area, shopping in the many diverse stores in the region (many not found in major shopping centers), and enjoying a day-trip to Rockford’s museums and trolley park.

There are a number of other moderate sized attractions in the Rockford and Belvidere communities that might benefit from the existence of transit service including:

Anderson Gardens	Klehm Arboretum and Botanical Gardens	Tinker Swiss Cottage Museum
Midway Village and Museum Center	Riverfront Museum Park	Discovery Center Museum
Rockford Art Museum	Rockford Dance Company	Rockford Symphony Orchestra
Storefront Cinema	Children's International Film Festival	Burpee Museum of Natural History
Stephen Mack Home & Whitman Trading Post	Trolley Car #36 at Riverview Park	Erlander Home Museum
Ethnic Heritage Museum	Graham Ginestra House	Historic Auto Attractions
Memorial Hall	The Angel Museum	Boone County Historical Museum
Coronado Theater	Jubilee Theater	Main Street Players of Boone County
New American Theater	Rock Valley College Starlight Theater	Maddox Theater
Cheek Theater		

Once train service is in place, an aggressive marketing campaign and the creation of convenient connections could be implemented to draw ridership going to these moderate-sized entertainment destinations. Because most of these destinations operate during

weekends or evenings when “push factors” such as congestion on alternative roadways are less of an issue (except for the typical I-90 congestion for Wisconsin bound trips) and where free parking is often provided at the destinations, an aggressive marketing strategy coupled with the creation of convenient connections would be the best way to draw significant ridership to these destinations.

Airport Ridership

Currently the Northwest Chicagoland Regional Airport (Greater Rockford Airport) at Rockford is served by only a few flights, although it is a major freight transportation hub. Parking for airline passengers is free at the airport and located directly adjacent to the terminal. Therefore, it is unlikely that this airport will serve as a source of commuter rail ridership in the near future. However, it should be noted that the airport has recently been significantly improved, including the addition of a 10,000 foot runway capable of serving the largest jumbo jets. Airport officials are working on expanding passenger service at the airport, possibly associated with the proposed reductions in service at O’Hare Airport and, if they are successful, this could be a significant source of future ridership.

There is significant current demand for transportation between Rockford and O’Hare Airport. Van Galder Bus Company operates 17 trips daily between Rockford’s major hotels and O’Hare Airport at a fare of \$13 one-way (\$8 for children). While Van Galder will not provide any information on the ridership of these routes, Congressman Don Manzullo (16th Dist, IL) was reported as saying in 2001 that more than 400,000 people ride the bus every year to O’Hare. While it is unclear if bus ridership is still at this level, this figure is at least an indication of the number of people willing to use transit to travel between Rockford and O’Hare. Capturing 5% of this ridership would mean an additional 20,000 commuter rail trips each direction, each year.

Total Market Segments

The ridership projections developed separately for each market were combined to produce a total average weekday and annual estimated ridership.

Table VI-8 – Total Estimated Ridership Market Segment Method

Market Segment	Daily	Annual
AM and PM Home to Work	536	136,680
Off-Peak	84	21,420
Reverse Commutes	72	18,360
Special Events	35	9,400
Airport	74	20,000
Total-Average Daily	801	
Weekend	294	16,068
Total-Annual		221,928

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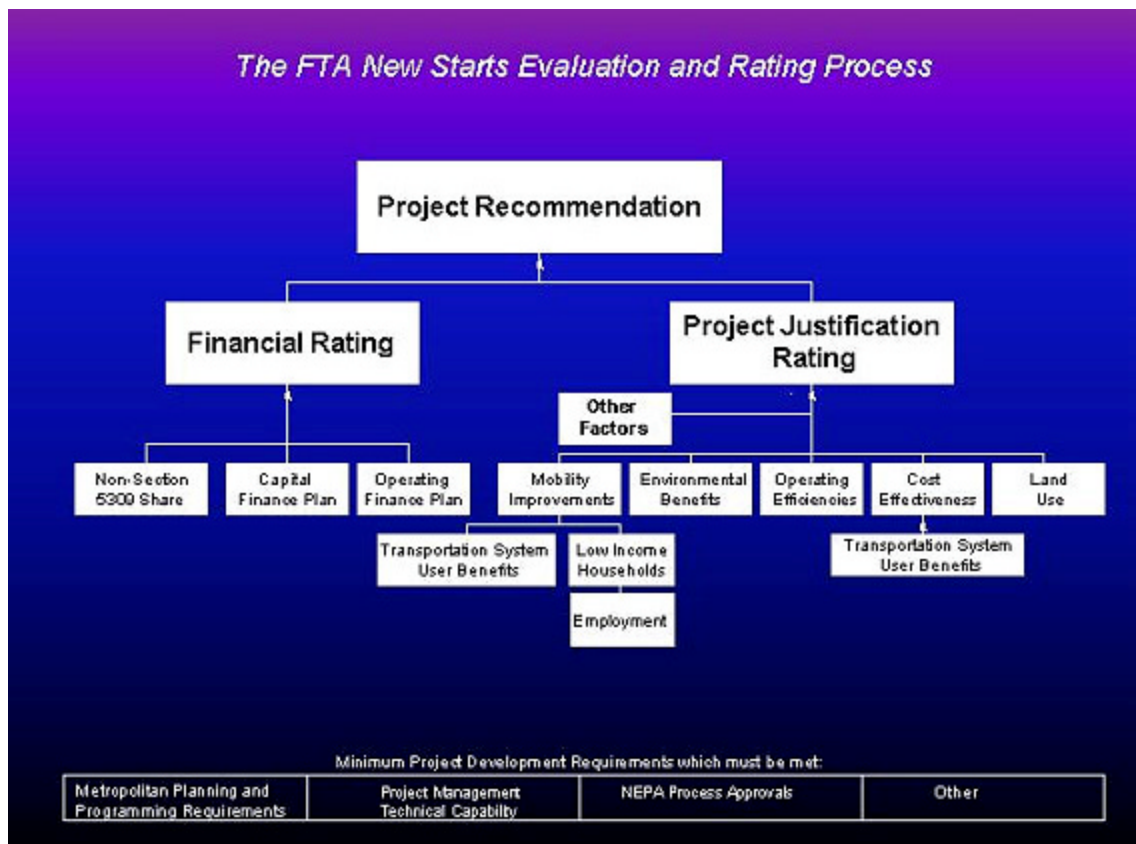
As shown in the table above, the market segment approach yields an estimated daily ridership of 801 as compared to the per capita approach which yields an estimated daily ridership of 1,160 to 1,353.

VII. FINANCIAL FEASIBILITY

The environment for funding rail transit projects is very competitive nationally and within the State of Illinois. At the end of 2002, the Federal Transit Administration reported 59 active projects seeking New Start Program funding and 120 projects in planning stages. In Illinois, there are currently six (6) active projects utilizing federal and state funding, 29 proposed future projects in the Chicago region, and at least three (3) proposed downstate projects, not including NICRI. The funding for these projects is very limited. To advance, project sponsors need to consider all possible funding sources at the federal, state, and local levels.

Federal Funding Options

NICRI is seeking from Congress a project authorization to be eligible for federal New Start Program appropriations in the future. Congress has preempted the Federal Transit Administration's discretionary authority to allocate New Start assistance. An authorized project must seek an appropriation earmark from the congressional appropriations committees. Sponsorship by a member(s) of the state congressional delegation is necessary. In addition, due to the great demand for earmarks, the appropriation committees consider whether a project has been recommended for funding by the Federal Transit Administration (FTA). FTA bases its recommendation on how well the project scores on the New Start criteria and its readiness to proceed. The key New Start criteria are finance, land use, and cost effectiveness. A flowchart depicting the evaluation and rating process is shown below.



Evaluation and Rating Process flow chart:

After first meeting the basic programmatic, planning, and environmental requirements which signify project readiness to advance into the next stage of development, project sponsors submit to FTA the project justification and local financial commitment criteria for evaluation (these criteria and their associated measures are described in the previous sections). FTA assigns a rating of high, medium-high, medium, low-medium, or low to each of the individual project justification criteria and to the measures for local financial commitment. These criteria/measure-specific ratings are then combined into summary project justification and finance ratings. These summary ratings are then combined to determine an overall project rating.

The finance criteria require a project to have a stable and dependable state and local financial plan for matching the requested New Start funding and for funding ongoing operations after completion. In recent years, the House Appropriations Transportation Subcommittee has required that the New Start project share not exceed 60% of the total capital cost. Nationally projects have averaged a 50% New Start share.

The land use criteria require that a project give evidence that it is complemented by dense land use conditions and/or local commitments to implement transit supportive land use plans.

The cost effectiveness rating is determined by project cost, projected ridership, and travel time saving to new and existing riders. To achieve a good score a project needs to maximize ridership and travel time-savings and minimize cost.

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FTA's New Starts project justification criteria and the current measures which make up each criterion are summarized below:

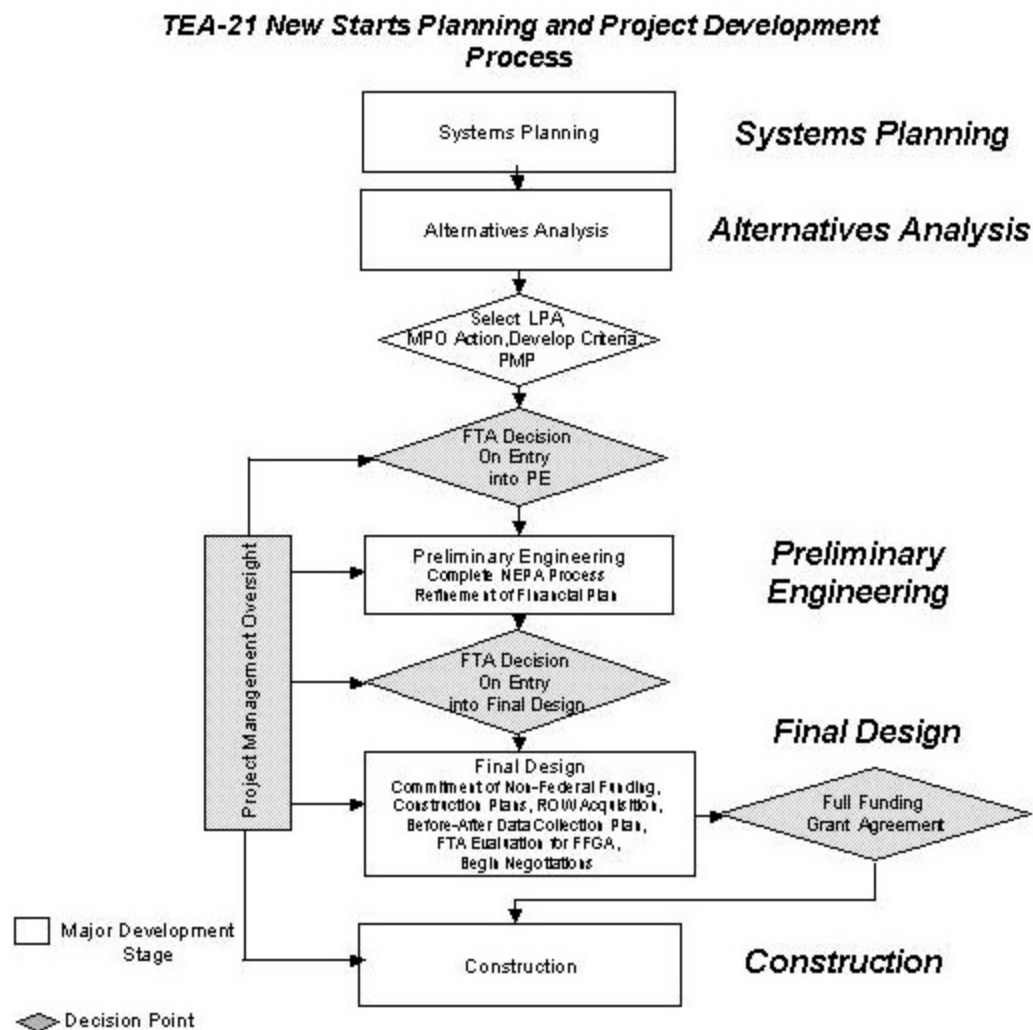
Criteria	Measure(s)
Mobility Improvements	<ul style="list-style-type: none">• Hours of Transportation System User Benefits• Low-Income Households Served• Employment Near Stations
Environmental Benefits	<ul style="list-style-type: none">• Change in Regional Pollutant Emissions• Change in Regional Energy Consumption• EPA Air Quality Designation
Operating Efficiencies	<ul style="list-style-type: none">• Operating Cost per Passenger Mile
Cost Effectiveness	<ul style="list-style-type: none">• Incremental Cost per Hour of Transportation System User Benefit
Transit Supportive Land Use and Future Patterns	<ul style="list-style-type: none">• Existing Land Use• Transit Supportive Plans and Policies• Performance and Impacts of Policies• Other Land Use Considerations
Other Factors	<ul style="list-style-type: none">• Project benefits not reflected by other New Starts criteria

There are other criteria on which FTA bases its evaluation as shown in the table above, but to a lesser degree. Legislation pending in Congress to reauthorize the federal highway and transit programs includes a new Small Start program with less rigorous rating criteria for projects seeking less than \$75 million in New Start funding. However, the new program is expected to still specify an evaluation based on the three key criteria of finance, land use, and cost effectiveness.

Each project's FTA evaluation and rating is compared to all other projects requesting New Start funding. Projects that rank the highest and deemed ready to proceed will receive FTA's recommendation for funding. Without that recommendation, a project's congressional sponsorship will have greater difficulty in making the case for an appropriation earmark.

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The New Start planning and project development process is shown graphically in the diagram below.



State and Local Funding Options

State funding for New Start projects typically comes from the state transit bond program. However, that program is funded by general revenues, as are all other state transit grants. The State's general revenues are seriously deficient. Furthermore, the multi-year funding of the state transit bond program, as well as the highway bond program, enacted in the Illinois FIRST legislation in 1999, is near completion. A new multi-year highway and transit initiative must be considered eventually. However, the serious on-going difficulties of the state budget and the need for new transportation revenues to back a new bond program, possibly from a gas tax increase, may delay such action for a few years. When such an initiative is proposed, there will be many rail transit expansion projects, some similar to and some larger than NICRI that will be seeking a share of the new transit program. NICRI needs to be an advocate for and be prepared to describe the advantages of this funding initiative.

While current economic times are challenging for the State of Illinois and the federal government, actual construction of this project may not start for a number of years. If local supporters for the project begin to incrementally set-aside funding now, the necessary local funding commitment will be more achievable. In addition, all sources of revenue should be considered, including federal funding not traditionally spent on transit projects. The following is a checklist of local funding sources to consider:

- County or Municipal General Revenue
- Mass Transit District Funding (tap existing district or create a new district for the rail corridor)
- Future Station Parking Revenue
- Future Station Concession Fees
- Joint Development (private entity shares in the capital and/or operation cost)
- Tax Increment Financing District Related Funding
- Special Service Area Funding
- Federal Highway Surface Transportation Program Funds
- Other Federal or State Funds (e.g., HUD CDBG or Illinois DCEO grants)
- Public Contributions

A common source of funds for transit improvement projects is the use of a dedicated sales tax. The typical ¼% sales tax that is currently used to fund transit operations in McHenry and Will Counties would produce the following revenue if applied in Boone and Winnebago Counties:

Boone County - \$585,400
Winnebago County - \$5,920,000

For comparison purposes that same tax in:
McHenry County – \$7,600,000
Will County - \$13,900,000

This amount could fund entry into the RTA or it could fund capital and operating costs of the proposed commuter rail service and improvements to Rockford's transit system.

Rolling Stock

A check of commuter equipment available today, in the event that additional locomotives and cars are required for the proposed extension of the Milwaukee West Line beyond Elgin, was accomplished.

- Reconditioned Amtrak F40PH Diesel Locomotive - \$200,000
- Morrison-Knudsen MP36, new locomotives for Metra - \$2.5 million
- Nippon Sharyo Bi-Level Passenger Cab Car, new equipment for Metra - \$2.1 million
- Nippon Sharyo Bi-Level Passenger Trailer Car, new equipment for Metra - \$1.8 million
- Budd Passenger Bi-Level Cab Car, twice rebuilt for Metra, recently sold for \$125,000
- Budd Passenger Bi-Level Trailer Car, twice rebuilt for Metra, recently sold for \$101,000

It should be noted that prices of new and used equipment vary with the existing market conditions and the number of units sold within an order. Often transit agencies will “piggyback” onto an existing order if the specifications of the equipment meet the needs of the agency. Significant decreased price per unit costs can be realized in this manner. Prices shown above are in 2004 dollars.

VIII. CONCLUSIONS

The preliminary ridership analysis anticipates an initial annual ridership of 222,000 and a total of 16.6 million passenger miles delivered. Revenues from fares are expected at \$1.6 million a year and expenses for the lowest cost option would be approximately \$3.3 million. This compares favorably with other “New Start” commuter rail services.

Establishment of commuter rail service along the Rockford-Belvidere corridor, tied to the end of the existing Metra service on the Milwaukee District West Line, shows considerable promise to become an effective and successful service to meet the mobility needs of growing communities along the corridor and to channel growth along a fixed rail system that can serve as a fulcrum to support and guide the inevitable development that will occur in this region over the next decade

IX. POSSIBLE NEXT STEPS

The NICRI financial plan does not have to be finalized until the end of Alternatives Analysis (AA), the next phase of the planning effort and the first step in the federal New Start funding process. Between now and then the following actions are recommended:

- Develop and maintain local project endorsements from all those necessary to maximize support with the Illinois delegation and within the General Assembly. Obtaining the Governor's support is equally important. Small, but vocal, opposition to the project could prevent it from moving forward.
- Initiate a public involvement process as outlined by the Illinois Department of Transportation for major transportation improvements.
- Follow through with the on-going initiative for a project authorization for federal New Start funding in the congressional legislation reauthorizing the federal highway and transit programs.
- Monitor the proposal for a federal Small Start program and more lenient project evaluation criteria.
- Begin testing various capital funding plan compositions, starting with reasonably conservative assumptions. A possible scenario is federal New Start funding for only 50% of total capital cost. If the state were to pick up the traditional state match of 20%, could NICRI commit to cover the remaining 30%? If not, then change the federal and state assumptions. Keeping in mind that as the federal and state capital shares go up, the more difficult it will be to actually obtain those funds. At the end of the Alternatives Analysis, there must be a reasonable likelihood that the project's financial plan is achievable in order to obtain a good FTA rating.
- Begin to consider the source of deficit funding for operations.
- Support efforts to pass a new state highway and transit funding initiative and position the project to obtain its fair share of the new program.